NATIONAL FEDERAL MILK MARKETING ORDER

PRICING FORMULA HEARING

DOCKET NO.: 23-J-0067; AMS-DA-23-0031

Before the Honorable Channing D. Strother, Judge

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Carmel, Indiana

September 13, 2023

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(Please note: Appearances for all parties are subject to change daily, and may not be reported or listed on subsequent days' transcripts.)

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M A S T E R I N D E X

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IN CHRONOLOGICAL ORDER:

WEDNESDAY, SEPTEMBER 13, 2023 - - MORNING SESSION

THE COURT: Let's come to order.

Okay. We resume with this witness.

CROSS-EXAMINATION (Cont'd)

BY MS. HANCOCK:

Q. Good morning, Dr. Stephenson. Welcome back.

A. Good morning.

Q. I think we were -- I just needed to cover a couple more pages in your survey study, and then we can move off that and wind things up.

I'm on, just so we're clear, Exhibit 178, which is your 2023 report. And I'm on page 26. We were talking about the ledger.

A. Okay.

Q. And I don't know for sure if I asked this. I might have. If I'm repeating myself, just forgive me. I'll get going again.

That depreciation number that's assigned there, I think you -- that's a number that either the person filling it in can populate, or if there's nothing there and it was zero, you would assign a number.

Is that where we landed?

A. No, I wouldn't assign a number. If -- if it was left blank, then it's not included. It would be in the sum of these costs as a zero value.

Q. Okay. I thought -- is that where you said you used an economic depreciation number?

A. I had asked them to do that, to use an economic

depreciation.

Q. Okay. And so if they didn't put in a number, it would just be zero --

A. Which would grossly understate the consumption of capital in a plant.

Q. Which in turn would show that they had much lower costs for the operation of their plant based on the numbers that they would be providing.

A. Yes.

MS. TAYLOR: Excuse me. I apologize for interrupting. But since everyone gets text messages, I think the webcast is down at the moment. We're aware and fixing it, in case you get a message.

I do think we continue. The webcast is nice, but not necessary to have the hearing. So I just wanted to let everybody know. And I do apologize for interrupting.

BY MS. HANCOCK:

Q. Okay. And then let's turn to the next page. I'm on page 27. This is the final page that someone will get to let them know that they have completed the survey; is that right?

A. That's correct.

Q. And it says -- you have a message there that says, "I will scrutinize your data for completeness and consistency, and then if I feel there is questions, I will contact you for clarification."

Did you do this for both your 2021 and 2023 surveys?

A. Yes. I have always done that.

Q. Is -- when you say you "scrutinize the data for completeness and consistency," are you just walking through each one of the tabs for each one of the plants that had responded?

A. Yes. I mean, and I -- we talked yesterday, I had a bit of conversation about some of those cross-checks that are kind of built into the data collection here. If they are out of bounds, then that's a red flag for me to go in and take a closer look and see what might be missing and to follow up and try to get that resolved.

Q. Okay. And how many of -- or what percentage of the plants did you have to cull back and follow up on?

A. A relatively small number. Sometimes I would send an e-mail, just a quick e-mail about, I need this to be completed. Because, typically speaking, there would be a few entries or boxes that didn't have completion.

Just to give you an example of that, the market value of assets, the way that this was asked for, you know, suggested that what would you expect you could sell your plant for today? And for a few companies, that was just a -- a question that they couldn't wrap their head around, had never been contemplated, they didn't know how to answer that, and they left it blank.

Q. And then you could -- you would update that data based on the conversation or the e-mail response that you received from them?

A. Yes. Or they could update it directly. I mean,

they can go back in and -- and enter or fix data. That's what I prefer they do. But if it was a verbal response, then I could go back in and do it.

Q. And I think you answered this yesterday, but you said you don't -- this doesn't generate a report for plant for you. You are just getting what we're looking at here, which is the tabbed information for each plant?

A. That is just data collection at this point. And it's an organized method of asking for and collecting that data. And it does provide some sub summaries. So, for example, when you take a look at that little packaging cost that's being calculated, that is a packaging cost that's going to show up for the plant at the -- on individual reports.

Q. And -- and did you provide the responders with a report back based on the calculations that you had done on their plants?

A. For this particular study, not all of them. A few of them had requested that, and I did send that back.

Historically, it's nice to be able to give people, you know, reports back. Part of what folks who -- participants, you know, like about this is that it gives them that external benchmark, how am I doing relative to the other body of plants that participated.

Q. So what did you provide them back to be able to help them put their numbers in context with the other plants that had responded?

A. Well, for this particular study, there were only a

few plants that had asked for that report back, and I did, you know, provide them information about what their summary costs were. So it was very much like that table that provides a summary of all the plants, but it did provide the same data for their operation.

Q. Okay. And then by the time you issued your data, they were able to use as their cross comparison?

A. Yes. If they'd asked for it. And many plants didn't.

Q. Okay. They -- you said many plants did not?

A. Did not. They supplied the data, and that was done at that point.

Q. Okay. Let's turn to on page 178 -- or I'm sorry -- on Exhibit 178, let's turn to page 4.

And this is in your Plant Selection area of your 2023 report.

A. I'm not quite there. 178 -- I see 177 -- oh, 178. Sorry.

Q. Exhibit 178, page 4.

A. Page 4. Okay.

Q. And this is under the Plant Selection heading. You see that?

A. Uh-huh.

Q. And it -- it says you maintain a proprietary list of about 687 dairy plants in the U.S.

And yesterday I had asked you how many you surveyed. Did you use your proprietary list to reach out to those plants?

A. I -- I have in the past, but there have also been times when I have asked for other help and guidance in selecting the plants that, for example, were producing the NDPSR products. So I know whether a plant is producing cheese or if they are producing fluid milk or yogurt or whatever it may be. I may even have some breakdown of the kinds of products within that broader selection out there.

It's difficult to maintain a database like this because plants are changing all the time, and capacities are increased, or plants go out of business, you know, some -- some of those types of things. But that plant location database is used for several different things, in my past, at least, when I was working on materials. So, for example, when we would do the U.S. dairy sector simulator model, we also used that plant location database to identify where plants are and what products they produce.

Q. And then you go on to say that NASS shows that there were 1,266 dairy plants in the U.S. in 2019, and then consistent with what I believe you just said, which is some of those are just very small and they wouldn't have products that would be reported to NDPSR.

A. Correct.

Q. And can you tell me why you can't just use the data that comes out of NDPSR, why you need to conduct an additional survey on top of that to be able to get to the actual cost data?

A. Well, NDPSR doesn't include any costs. It

includes prices received for products that were sold. It does give you some idea about the number and the pounds sold and product that was reportable. But it doesn't give you any idea about the costs or even which plants participated in that.

Q. So you can use that as a backdrop for some pieces of information, but then you have to dive in deeper for the costs that we have talked about in the survey?

A. Yes. Absolutely. Yeah.

Q. And then you go on in the next paragraph to say that "participation in this study is voluntary."

And that's referring to the 2023 study; is that right?

A. Every study I have ever done.

Q. Okay. So that was going to be my next question.

So you have never had a study that you have done that's been a mandatory reporting study?

A. No.

Q. And the one that you had done with USDA, the 2021, you note in here "captured a good portion of the butter and nonfat dry milk sales that were included in NDPSR, but the proportion of cheddar cheese and dry whey was not as complete."

Do you know what percentage of the cheddar cheese and dry whey reported in NDPSR products that you did not capture?

A. Well, I don't recall that off the top of my head. I would have to go back and take a look at that again.

But, I mean, there are pounds that are reported every week in NDPSR for the four products. And I know how many pounds are reported by the plants that I have here. I don't know how many of the pounds that are reported by these plants were actually reportable to NDPSR but --

Q. How -- oh, sorry.

A. No, I'm done.

Q. How did you know that -- that you -- well, it sounds like you were less than satisfied with the amount of response for cheddar cheese and dry whey; is that fair, for the 2021 study?

A. It was lighter than I expected.

Q. How did you make that determination that it was lighter than what you expected? What did you compare?

A. Well, based on the past. We always have plants that are invited to participate and some that don't choose to do so. But, typically speaking, I get a pretty high proportion of plants that are invited that actually do. And I think that for many of them, it's a sense of curiosity, you know, about what would be there. And for some of them, it is also just maybe a sense of obligation that this is something we should do for the betterment of the industry, to have a report like this put out.

Q. It's fair to say that any -- all of the responders could have different motivations for why they are responding to the survey?

A. I think that's absolutely fair. Although, you know, I can't say that I have gone back in and done a

follow-up to say, why did you or why didn't you respond to this.

Q. And I think you estimated that it took several hours to complete the study?

A. Yes.

Q. So it's not a light undertaking for someone to do; is that fair?

A. No, it's -- I think it's a fairly substantial ask. It is going to require a person that's fairly well up in an organization to spend at least a better part of a day doing that.

Q. And so in the 2021 study where you say that you captured a "good" portion of the butter and nonfat dry milk sales, do you know what -- what amount is a good portion?

A. No. But I would have said if I got 50% or better, I would feel reasonably comfortable about that as a sample.

Q. Okay. So is it fair to say that in 2021 you felt like you were able to capture at least 50% of the butter and nonfat dry milk sales reported in the NDPSR?

A. Yes, I think so. And, you know, I -- I felt like there was good representation, at least, of the number of possible operations there. But it wasn't quite as true for the cheese and the whey plants.

Q. Okay. So is it fair to say, then, for the cheese and the whey plant, you captured something less than 50%?

A. Of the volume. I believe so. Again, you're

trying to lead me down a path where I have already told you I can't quite recall that off the top of my head. I could go back and recalculate that if that were important for you.

Q. And I'm not trying to lead you anywhere. And I know that you didn't know the number. I'm just trying to get rough estimates so that I can at least bucket it in one category or the other.

A. Yeah. I mean, let me just give you a big example. If I got 10% of something, I would feel like that's a pretty thin margin to use as a -- you know, as something that was significant and representative of the sample. If I got something that was 50% or greater, then I would feel pretty good about it.

So if that gives you an idea about, you know, how representative some of the samples were, then --

Q. Can I take it from what you just described then that for cheddar cheese and dry whey, it probably falls somewhere between that 10 and 50%?

A. Probably. But, as I said, I don't know without going back and taking a look at it.

Q. And that was for the 2021 survey.

In the 2023 survey, the one that IDFA and WCMA commissioned, the next paragraph you say, "With the urging of IDFA and WCMA to their members, participation of cheese and dry whey plants was higher."

Is that fair?

A. Yeah. Those were my words.

Q. So when you say "with urging," do you mean that IDFA and WCMA encouraged their participants to respond?

A. They felt it was important to get a good update of the cost of processing study.

Q. And then you go on to say in that same paragraph on page 4, "It must be noted that a different sample of plants makes it more difficult to compare results from different studies."

Are you referring back to the '21 study being compared to the '23 study?

A. Well, I would refer that to any kind of -- I mean, that's kind of a generic statement. If I had all the same plants in the 2007 study, the 2019 data, and the 2022 data, then it would be fair enough to say are these representative of the census of plants that might have been reporting. Perhaps, perhaps not. But at least within these plants you can see what the trend has been. Plants may have made investments in capacity or automation or technology, but at least within the same plant you would be able to see how their costs had changed over time.

Q. Okay. It's fair to say that, because you had only -- I think you said about 15 plants that overlapped between 2021 and 2023, that meant that a large majority of the plants that were studied in 2023 were different than your 2021 study?

A. They were different, and I hope I conveyed that in the body of the text in here. I mean, certainly some of

them were the same, but we -- we got plants in both of those studies that just were in one but not the other.

Q. Okay. And then you were just noting here that from the role that -- that you were in, that you're just making a qualifier here that says you have to take this 2023 study with a grain of salt because that different sampling of plants can make it different to compare those two, if it were instead an apples to apples comparison?

A. I don't think I used "grain of salt," but I think that it's fair to understand that if they aren't the same plants in there, that you can get different results. I -- I have tried to make that point rather -- many times I think in here that the sample matters.

Q. Yeah. And I think that you have. I just want to make sure that I'm exploring that as well.

And you did, actually, get different results between your 2021 and 2023 survey results; is that right?

A. Yes, I did.

Q. And -- okay. Do you know if when the IDFA and WCMA were urging their members to participate in the study that they knew what the study was going to be used for?

A. I wasn't privy to any of those phone calls or e-mails, so I -- I don't know. I would assume, but I don't know.

Q. Did you know what the study was going to be used for for 2023?

A. Oh, absolutely. I mean, I would not have responded with a degree of urgency to get it done and get

it prepared, you know, had it, you know, not been for the hearing that was upcoming.

Q. So you knew it was intended to be used for this hearing, to determine the Make Allowances that USDA would be considering at this hearing?

A. I did.

And, you know, I could go a step further to say that because I was not as satisfied with the results of the 2019 data, felt that, you know, they had question marks as far as I was concerned from what I might have expected, that it would have been hoped that you might get a better sample and better results here. And of course, if you have an organization like IDFA or WCMA urging members to participate, then, you know, I felt that we might get a better sample.

Q. Okay. Why were you not happy with the results that came out of 2021 survey?

A. Well, some of the results looked to me like -- I mean, I report the data. I don't cook the numbers or do anything with it. It is the data as I receive it. And yet there were still some questions that you had with the results of products, like butter, as a good example, in the 2019 data that I might have expected would have been a bit higher than that.

Q. And I think for butter you had $0.1411?

A. I'd have to look, but that is -- it is in that ballpark, yes.

Q. Okay. And you ended up almost three times higher

at $0.3176 after IDFA and WCM --

A. I probably would have said a little more than twice as high.

Q. Okay. It's a little less than three times, a little more than twice, something like that? Okay.

Other than the butter number coming in low from the '21 survey, anything else that you felt like was deficient or lacking?

A. No. That was the one that stood out to me in particular but -- and at any rate, I felt like it was a worthwhile effort to go in and redo a study to see if we couldn't get better sample.

Q. And I think you -- you also talked about changing some of your methodology between 2021 and 2023.

Can you talk about that a little bit more?

A. Yeah. The 2021 study was where I introduced the idea of a weighting of unallocated costs by the degree of product transformation. And, you know, I gave examples. So if you had a plant that brought in raw milk and perhaps made nonfat dry milk and sold most of the cream as cream instead of churning it to butter, then for a rather lightly processed product of cream, you would have been overallocating costs with the methodology of using the pounds of components in the cream in comparison. So that would have overallocated costs to cream and underallocated them to powder as an example.

By the same token, it could have been the other way around. If you churn butter and sold a lot of skim

milk or condensed skim or something like that, then you might have underallocated to butter and overallocated to powder.

Q. And that was on a scale of 1 to 10 that you assign that transformation?

A. It was on a scale of 1 to 10. I worked with people from the Center for Dairy Research at the University of Wisconsin. They are a group of academics and others who work in dairy processing area, and I explained to them what I was trying to do. And I didn't want to get highly technical if I could. I just said, on a scale of 1 to 10, for all of these products, can you give me a ranking number that represents the degree of product transformation that has to go on for the plants. And so those were the numbers that they came up with.

Q. And so on that scale of 1 to 10, cream, for example, was rated as a 2?

A. I --

Q. I'm on page 7.

A. If you -- if you would have asked me, I would have said a 3, but I couldn't remember. Yep. Cream is a 2.

Q. And then butter, for example, is a 6?

A. Yes.

Q. But whey protein concentrate powder would be a 10?

A. Yes.

Q. Okay. Meaning that whey protein concentrate powder would take up the most costs for its transformational value.

A. For its transformational value, yes.

Q. Okay. And you did this to try and capture or help you better analyze the financials that were coming in from the more complex plants; is that fair?

A. It is fair. We have had -- we have had plants in the past where they had reported data, and then when they looked at results, you know, would say, ooh, that -- you know, you have underestimated costs for this product and overestimated them for that product. And, you know, when you look to see what's happening, and your methodology, you realize that you were putting a lot of weight on components that were not being very heavily processed.

Q. And then in that 2021 survey, when you did publish it, you noted in your report, in 2023, that the industry reacts with some criticisms.

A. They did. And I think that, you know, part of the criticism was the actual numbers, you know, that -- that they looked at. Butter, as an example, was a fairly low number. And this weighting scheme would have a tendency to push butter values lower, would have a tendency to do that.

But, in my opinion, in looking at the data and the plants who were participating, it was more of a sample problem than it was this weighting problem. But this is what was obvious to people, that this had changed, and so I think that folks were uncomfortable with that process. The other process had been well established and -- and the industry seemed to feel comfortable with it, so I went

back to that.

Q. Okay. And when you say "went back to it," meaning you didn't have a --

A. I didn't transform the data. Sorry for jumping in.

Q. No. That's okay. Your words are better than mine.

So it just meant that when you went back in 2023 to your original methodology, you weren't assigning a weighted value of cost, you were just allocating them on your own based on the product mix that was being made at the plant?

A. And the components in those final products. That's correct.

Q. Okay. And do you remember when you were getting those criticisms, was it from USDA, for example?

A. No. I -- I heard, you know, from a number of people who looked at this with surprise. Some of them, participants; some of them, industry organizations; some of them -- well, maybe, regulatory, I don't think said, gee, what's going on here. Nobody had -- had asked about that in particular.

Q. Okay.

A. But, you know, legitimate I think to question those data.

Q. And I thought that you had told me that you felt like you had already captured a good portion of the butter that had been reported on NDPSR in that 2021 survey.

A. But not as much as this time around, the 2023 survey.

Q. Okay. So even though you felt like you captured at least 50% of the butter in that 2021 survey, you still feel like the results were somewhat impacted because you didn't have enough of the butter responses?

A. Yes. And there were different plants. So even though, you know, there was a reasonable volume of butter in the sample, there were a different set of plants that reported in 2021 versus the 2023 study. Some overlap, but quite a few different plants.

Q. Okay. And do you think that if you would have had all of the butter plants from 2021 and all of the butter plants from 2023 combined, it would be even more accurate than what you have in your 2023 study?

A. More is always better.

Q. Okay. And now on page 6, I think you have a statement here that you were not trying to determine the profitability of the plants; is that accurate?

A. Yes. So to determine profitability, you would have needed quite a bit more data, such as the sales price and value of the products from the plant as well as the costs that were paid for dairy ingredients coming into the plants, and those were specifically not included. And some of the marketing costs that are incurred are not included in this cost of processing.

Q. And then you used Moody's index value in 2022 to calculate a return on the value of the assets at 5.07%.

Is that right?

A. I believe that that was the number.

Q. And I'm pulling that off of page 9. So I'm not making you guess.

A. Okay. Thank you. I will accept that you have looked at the right number.

Q. And I'm just -- so for you, what do you -- how do you interpret that return on the value of assets number? What do you interpret that to mean?

A. Well, if you think about any -- any firm or business that has a lot of asset value tied up in the operation of the -- of the firm, then they would always have an option -- maybe seems extreme -- but an option to sell that plant and its assets to someone else and put that money in a safe investment, or to invest it in a different kind of operation or plant. So this is a means of just saying that there is an opportunity cost to the investment that you have, and your investment should return something over time.

Q. But the cost of tying up your asset, because if you didn't have them tied up here, you could deploy them somewhere else?

A. I would like to think that your assets are working for you whether, you know, it's just through a paper investment or in physical assets of a plant.

Q. Do you believe that a 5.07 return on asset value is a conservative number?

A. Well, I don't need to believe that, but when I

look at the possibilities for what number you might pick, I have used the same methodology that CDFA had used in the past, and that was the Moody's Baa bond index. It is not a risky bond or a junk bond, you know, that would have a high interest rate. It is not a savings account type of interest rate that would be exceedingly low. But it's a very conservative safe bond that tends to have a lower rate of return.

Now, I will say that that return on assets number can be influenced by two things: Either, one, by the value of the assets that you perceive you have, the market value, or by the interest rate at the time. And our interest rates have gone up, as I think most of us would know over the last couple of years, thanks to action on the part of the Fed, and bond interest rates have followed that up. So it's a higher interest rate than we had in earlier studies.

Q. And so you use that -- you use this return on asset percentage and assign it to that market value of asset number that we looked at on the survey on page 26; is that right?

A. That's correct.

Q. And so depending on what the survey responder plugs in as their own market value of assets, it can have a big swing on the numbers; is that fair?

A. It could. It could have a big swing on that particular number. That number is broken out, I think, in the table. It's still a relatively small proportion of

total -- yeah, there's a return on investment there.

Q. Are you on page 12?

A. Oh, I just flipped open to page 14, but let's take page 12, that's fine.

So you are looking at the all plants number here for nonfat dry milk processing. The return on investment was $0.035 per pound.

Q. Okay.

A. So that's $0.035 per pound out of the $0.275 that was reported for total costs.

Q. Okay. So tell me what your table -- if we're on page 12, tell me what your Table 3 -- this is titled Plant Costs for the Nonfat Dry Milk Processing -- what is that table designed to capture there?

A. It's designed to capture all of the costs partitioned into different cost centers, I guess, or ways of identifying costs by -- by usage in the plant. So we have tried to use the same methodology, again, that CDFA has used in the past. Although CDFA did change a couple of their segments over time, so -- but the more recent ones I believe had segmented this into processing labor, so in other words, what is labor, and you can kind of see in here that was about 19% of the total cost from that pie chart down there.

What about utilities? That's another major cost center in plants, about 15% in this case.

What about packaging? About 7%.

Non-labor or utilities processing, that is a title

that CDFA uses that I think confuses people, but it's -- it's a host of other things that don't include labor or utilities or some of the general and administrative costs. Now, you can't look at the general and administrative costs of that last ledger, general ledger chart that's on there and just say, it is all of those. No, it's some of those, and a few other costs as well.

So, for example, superintendent labor in a plant is part of the general and administrative costs that are listed here, as are secretarial support and, you know, a few other things.

Q. Attorneys?

A. Attorneys, yes, of course.

Q. I just note that you called that out in there, and so I thought it would be appropriate here to note.

So if we take the column -- so starting at processing labor, utilities, packaging, non-labor or utilities processing, and then G&A, those are all actual costs that you have collected from the survey responders; is that right?

A. That's correct.

Q. And then as well as the product pounds that are noted there?

A. Yes.

Q. And on page 12 what we're looking at is all of these are specific to their production and processing of nonfat dry milk?

A. Yes.

Q. And then you have a return on investment column there. That's based on what we were -- a calculation that you have allocated based on that return of asset value.

A. Yes. And, again, if you looked at that last ledger page that was shown on page 26 of this report, the market value of assets can be given to me as unallocated, you know, for the entire plant, or you can try to break it out to your cheese product or your butter products or your powder products.

Q. If they didn't break it out and they just gave it to you as one cumulative number, how did you allocate it when you went back to -- for -- on page 12, for example, to nonfat dry milk processing?

A. The same way that all of the other unallocated costs were done as I have explained before. It would be based on the pounds of components in those products.

Q. Okay. And so for the market value, though, you didn't use -- you just used it based on allocation of the pounds?

A. No, the market value would have been based on the allocation. If it -- if they reported one number, you know, for the market value of the plant, I would have allocated that to, let's say, nonfat dry milk based on the pounds of solids in the product. And then it would have been divided -- I mean, the dollar number from that would have been divided by the total pounds of nonfat dry milk reported processed by the plant.

Q. Okay. And so -- and then -- back on page 12

again. And then you take all of the actual costs that are reported, and then you have added in a return on investment that was based on that 5.07% return on asset value.

A. Yes.

Q. And then as it's been applied to the market value number that was input by the survey responders. And then you have allocated that based on the pounds of solids for this particular product if it was reported generally. And then you have come up with this assigned number that we're looking at on page 12 in this example?

A. Correct.

Q. Okay. So, for example, if we are looking at, for low cost plants, it's $0.0152 -- is that per pound?

A. That would be per pound of nonfat dry milk powder.

Q. And that would be a return on investment that was assigned to that low cost plant, and then you have added that -- all of those actual costs and the return on investment to come up with the total cost there.

A. Correct.

Q. And then the same would be true for a high cost plant, they would have -- for a high cost plant in this example, it is $0.0569 per pound for return on investment; is that right?

A. Correct.

Q. And -- and then -- so if we do the math on a high cost plant example, and the return on investment as a percentage of the total cost, I come up with 17.5%. Does

that look right to you?

A. I think you are in the ballpark. And I should trust your math, but I don't.

Q. You probably shouldn't. Never trust an attorney's math.

A. Okay. You are looking at the high cost plants?

Q. Yes.

A. 17.5%.

Q. Okay. And so in this example, the return on investment for the total costs of producing nonfat dry milk processing at a high cost plant, they would have a 17.5% profit margin built into their cost here; is that right?

A. That would be the return on investment here, yes.

Q. Okay. And so if -- we have heard some examples of kind of a rough calculation on how profitability works in the sale of cheese. So I'm going to give it a whirl, so you just have to bear with me.

But you have a USDA cheese price that's set in this example, we're talking cheddar cheese, the price that would be set for calculating; is that right?

A. I don't think they set the price. They discover the price.

Q. Okay. They discover the price.

And then if you subtract out an assigned Make Allowance, then the net of that is the value to determine that Class III price?

A. In --

Q. Very simple terms.
A. Mostly, yes. That neglects yield factors, but, yes.
Q. Well, and that's a good question.
Did you do anything in your study to -- to calculate or factor in yield?
A. I didn't, no. There are some data that are collected that could be used to look at approximate yields for something like butterfat, for example. But it would be difficult with what I have collected to get a complete set of yields, yield factors.
Q. But nothing that we have in your study as it exists right now?
A. No.
Q. Okay.
A. I mean, that would be an addition of a few more questions and reporting to do that.
Q. And if we had the ability to provide you with a wish list, would that be something that you would want to have included?
A. If I were director of Dairy Programs, I would probably want to take a look at every parameter that is in my product price formulas. So, you know, the two parameters that we have in there now are yield factors and Make Allowances, but there are some interaction in terms of the protein, values, and those kinds of things. I think it would be worth examining those from time to time, and I do think that yield factors can change over time as

well. So practices do differ, even though we're making some of these products to standards.

Q. Okay. So is that yes, you would like to have that data if you --

A. Yes, I would.

Q. Okay. And so if we use that Class III price there, it's fair to say that the -- this return on investment that we just looked at is built into that Make Allowance that we have just subtracted out of the cheese price; is that right?

A. If this were used as the Make Allowance, yes.

Q. Okay. And so if they just did nothing -- if a processor did nothing else other than just sell exactly as that formula allowed at the Class III price, they would already have in this example that 17.5% return on investment as a percentage of the total cost of that product being made as a profit.

A. I think that's a little sloppy thinking because you have selected the high cost plants and are assuming that that is what would be included as the Make Allowance. And maybe you would want to follow that through with the all plants or something else.

Q. Okay.

A. But, I mean, at least, qualify your statement, I think, for the high cost plant that's -- that's a legitimate conclusion to draw.

Q. And that's fair because I'm here representing National Milk, so I want to use the number that's best for

me.

But we can -- we can use all plants. So I calculate that one to be 11.1%.

A. Okay.

Q. Does that look about right to you?

A. I haven't done that calculation, but your earlier calculation was spot on.

Q. Okay. Well -- and just for our record, I'm on page 12 of 30 of your report, and so that's 11.1% for all plants under the nonfat dry milk processing.

And so if we just use that number, and your number was used for the Make Allowance, it's -- and all things just being static, if -- if a plant were to sell a product at the Class III price, that return on investment would already be built into the sale of that product?

A. For the average plant that's in there, yes. If -- if they were the average plant, then, you know, that's what would be included in the Make Allowance, if that was the Make Allowance.

Q. And if we harken back to day one, Dr. Vitaliano told us the way averages work is that some go above and some go below; is that fair?

A. Sure. Sure.

Q. Some will be higher than that then, and some will be lower than that.

A. Yes.

Q. Okay. And so if -- if costs -- or if the plant is able to improve, in the same scenario, if a plant is able

to improve on its costs and build in some efficiencies, they can make the product for less than the Make Allowance, that's another opportunity for them to add more profit to their bottom line; is that right?

A. It is. But, you know, the -- that's still -- I mean, that is -- I think I stated there in the commodity-based product orientation that the biggest opportunity that plants have for increased profitability is reducing their costs of production.

Q. And we have heard from other folks who have testified already that if they can beat the Make Allowance, they know that that helps build in some additional margins for their products.

Is that how you understand it would work?

A. Well, I would think that it's always a legitimate goal to reduce your costs of production.

Q. And so you understand that for the processors, there's an inherent built-in goal of trying to increase their Make Allowance as high as possible so that they can try and beat it and build in their profit margin?

A. I do understand that we would always want to be pursuing a higher profit in a plant, whether that's by reduced cost or increased price of product sold or whatever the efficiency may possibly be.

Q. And then if I can take the same example again, where this Class III price has been set with this ROI built into it, if -- if they are able to sell their product for a price greater than the Class III price, so

some premium pricing, that's then a third way that they can also capture additional profits; is that right?

A. That's a possibility.

Q. And probably a goal, right?

A. Well, you would always want to have a price that is the highest that you can achieve for the sale of your product.

Q. Okay.

A. Other things being equal.

Q. And then did you look at Dr. Schiek's -- sorry, I have to make sure I say that right, he's earned it -- did you look at Dr. Schiek's modeling?

A. I didn't. I mean, I took a quick glance at it, but I have not looked at it in any detail at all.

Q. Do you understand what methodology he deployed?

A. I understand roughly what was being done there, yes.

Q. How would you characterize it?

A. How would I characterize it?

Q. Yeah. How would you describe his methodology?

A. It would be a standard methodology that economists might use as one of the means of modeling plant costs.

Q. Is it an indexing of the costs?

A. From what I have seen, it is the use of prices over time and factors that would be consistent with those prices to carry them forward in time.

Q. Is it a methodology that you would use to set Make Allowances?

A. First of all, I'm not in that seat. I do think it's probably better to survey plants. And this is casting no dispersions (sic) on that particular methodology, but if you survey plants, then you not only get some idea about what the costs were that were incurred, but also the factors that were used in the production of the plants. So in other words, some of the yields that were also changing with plants.

Q. Meaning you have to just take in actual conditions as they continue to evolve over time, and that modeling methodology doesn't take those into account?

A. No, it doesn't. I mean, a good example was yesterday we had several discussions about things even at the farm level, such as feed costs, for example, and how those had been inflating over time.

One of the things that's been changing at the farm level, because of higher feed costs, is increasing use of genetics to try to promote more feed efficiency and conversion in dairy cattle, so, you know, I want to use less feed to make a hundred pounds of milk. Plants do the same kind of thing. I want to use less electricity to produce a pound of butter. And, you know, they have energy recapture opportunities or technologies or automation that may supplant some of the labor in operations. So, sure, factors of production should be identified over time.

Q. And an indexing methodology wouldn't capture those items?

A. It would be difficult to do that. I mean, you -- you might make some corrections -- as I said, I haven't read or looked at Dr. Schiek's studies, and I don't know if he made any attempt to account for changing factors of production.

Q. And I will say you were equally as maybe humble or candid about your own methodology and some of the shortfalls that were included in the process that you used as well. Is that fair?

A. Nothing is going to be perfect.

Q. Are there improvements that we can make on the 2021 and 2023 studies to make sure that they are more accurate?

A. Absolutely. I would be a strong promoter, I guess, of making sure that we had the opportunity to have a good and representative sample, if not a census of plants, and that the data were -- at least had the ability to be audited if you ever felt that was a question or need.

Q. So if I just want to maybe summarize some of the areas that I pulled out of either your testimony or your statements, one of them would be having the study, if you had your -- if you had your dream of making the most ideal study, to make sure that it was the most accurate, it would be changing it from a voluntary study to a mandatory study.

Would that be one?

A. I think that that would be a good thing to do. I

think the plants would recognize that it's another burden that they would have to comply with, but that they would at least feel that they are getting good and accurate data to be using.

Q. And then if it was something that was collected on a routine basis, it would -- it would be something that the plant could have processes in place to make that easier or more efficient for them?

A. They could for sure. And it would provide them internally with a benchmark of their operation relative to others.

Q. So there's a value externally but then also internally for the plant as well?

A. I hope they would view it that way.

Q. And would another element be to make sure that the information was standardized so that when a plant was responding and inputting a number, we knew that we were comparing items apples to apples?

A. I have tried very hard to do that myself.

Q. Are there ways that we can improve on it?

A. Boy, I -- I don't know other -- perhaps you would want to get into the plants and be able to follow their method -- internal methodologies all the way through to make sure that the costs that are being reported are the ones you expected them to be.

Q. So, for example, you have some broad categories like when you talk about headquarters expenses. Is that an expense category that we could have some

standardization around that would make sure that everyone was including the same numbers in that category?

A. Sure. I think that headquarters expense is kind of a -- an imprecise title, you know, that may go in there, that may include a variety of items for some plants and not for others. So, you know, that's one of those things, if you were taking it line item by line item, you might look at and question, why is my headquarters expense so high?

Well, if headquarters are also purchasing for several of their plants, then you may not have a packaging cost, for example, at the individual plant level or one that's commonly reported but rather that's included in headquarters cost offset.

Q. And I just used that as an example, but there's other examples in there where we could be more precise through a standardization; is that fair?

A. There could be. And when you get down to some of the line items that are asked for in here, I think it's hard to be any more precise than what we already have.

Q. And -- and then another area might be making sure that the survey is auditable so that we could verify the data that's in there. Would that be another way to improve on the study?

A. I think that that's good. I mean, it helps to provide understanding for AMS or whoever is conducting the study to assure themselves that they know what's going on in a plant, and I think it is always good to be getting

into plants so that you have an idea of process and how things may have changed. I was not in plants for this particular study. I have been in the past many times. And sometimes just walking around and looking at, you know, what's being done, you know, you might ask a question about, you know, product in cooler or something else that you observe.

Q. Okay. And -- and another area that in a perfect world would be more of a standardized allocation of costs, whether it be using a weighting method or some systematic way to make sure that the cost allocations are accurately reflected in each product?

A. I think that you ought to agree as an industry on how that allocation method could or should occur. Costs have to be allocated in all plants, and we at least want to make sure that it's being done the same way.

Q. And I think in your report you also noted that the respondents have a great amount of latitude to include information based on their own interpretation of their financials.

Is that one of the areas that you think we could improve on as well?

A. I don't recall saying that.

Q. And that --

A. Can you point that out to me?

Q. Well, it would pertain to both the depreciation assignments and then also the valuation of their own market value assets.

A. As a specific example, yes, that would be one of the things that you would want to have a discussion on. As I mentioned, CDFA used to construct and maintain a depreciation schedule on every major piece of equipment in the plants, and that's not something I was willing to do.

Q. Okay. And that's because once they have the data, they can track that over time so that it can't be something that somebody can manipulate each year through responding to their studies; is that --

A. Well, this would be where an audit would be something that would be almost necessary, too, to identify, do you have that piece of equipment, where is it, how old is it, what did you pay for that.

Q. And it's fair to say those two categories of numbers, both depreciation and the market value of the assets, can have a considerable and significant impact on the actual costs that is determined for each plant's production of products?

A. They have an impact, for sure. I mean, as Mr. Bauer mentioned, you know, his plant was fully depreciated, and so to him this is a low cost plant. And it's because he's identifying the non-cash costs of depreciation, you know, as being zero for him, or close to it.

I think that we could argue whether that was really true in the world or not. But for his experience, it's a low cost plant because he's not depreciating equipment.

Q. How do we account for the fact that the costs that were collected in your 2023 survey were collected at a -- at the peak of a global pandemic when costs were extraordinarily high and -- and maybe not representative of a wider time period?

A. I'm old enough to remember when we had double-digit inflation, and I think that many people don't recall that kind of thing at all. You know, it's inflation less than 3, 4%, would be the very norm for them, and interest rates in those kind of ranges. But things will change over time. We had a large step, and I don't know how rapidly we retreat from these interest rates, but these interest rates may be with us for a long period of time.

Q. So I understand on interest rates, and I'm just -- maybe my question is a little bit different, because I'm not just -- interest, obviously, is a big cost. But I'm also just talking about just the general input costs or the supply costs that a plant had in 2022, which I think are -- were -- were extraordinarily high and not in a way that was normal inflationary growth.

A. Well, if -- if cost studies were ongoing, I mean, a regular thing, then you would have the opportunity to watch and track those.

Back in the hearing for the changes that were made for the 2008 updates to Make Allowances, the big discussion at that point in time were the increases in utility costs, electricity and gas. They had risen very

rapidly, and the industry was very concerned about it. They also retreated from those high levels. So costs do change over time. I -- I would acknowledge that. And they don't always go up.

MS. HANCOCK: Thank you, Dr. Stephenson. I appreciate your time.

THE WITNESS: You're welcome.

THE COURT: Additional cross before AMS?

Yes, Mr. Miltner.

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Good morning, Dr. Stephenson.

A. Good morning.

Q. Ms. Hancock covered some of the questions that I had here, so I'm going to try to not repeat them as best I can. I'm sure there will be some overlap, though.

Ryan Miltner for Select Milk Producers.

I was looking back -- and this is now the third time I have had the opportunity to cross-examine you on cost surveys, for what that's worth.

A. Congratulations.

Q. Yeah, thank you. Thank you. I'll get a certificate and frame it or something.

I can promise you only the first couple of questions will refer to those prior hearings.

In the 2006 report you provided, you calculated a confidence interval for the plants that were reporting, and you did not calculate a confidence interval for the

2021 or the 2023 report.

Is that because the sample wasn't random?

A. No, it isn't. And, boy, Ryan, you are pulling me back to a memory that barely tickles neurons on here. I hadn't looked at that. But I believe that that was one of the studies where we had, in fact, pulled from a stratified random draw of geography and plant sizes. So we could do some calculations to look at what was it that we actually got in the way of the sample there. So that was a different goal, I guess, we were trying to achieve, to have representation across all geographies and across an observed spectrum of plant sizes. And the goal this time for me was to assure that we had as many plants as we could from NDPSR-reportable products.

Q. Okay. And for the record, I -- I didn't have a specific recollection of that exchange until I read it a few days ago, so don't feel bad.

A. Okay.

Q. So similarly, in 2006, you calculated an R-squared that tied the volume of product produced to the total processing cost.

Same -- same rationale for why that wasn't prepared for these two studies?

A. Yes. Over the years, many years, I have performed different kinds of cost estimates of processing. Some of them have been synthetic, you know, where we used an economic engineering approach. Some of them have been statistical, as I think we have seen with Dr. Schiek's

study this time around. And some of them have been survey approach.

My summary at the time I had done some different approaches was that the sample approach, the survey approach was the best estimate that we had of plants within known sizes. If we were trying to go on size of -- outside of observable practices, then you need to do something else.

Q. So outside of a statistical measure, could you reasonably draw any conclusions about the size of plants and their cost of operations for the 2023 report you have provided?

A. No, I haven't done that. I -- I mean, I can have observations where -- in fact, you can see that in the tables in here where you will look and find the identification of the low cost and high cost groupings of plants, and you will generally notice that they tend to be larger volume plants, you know, that are low cost operations. It's not absolutely true and characteristic. We do have small plants that are very competitive, but it does tend to be true in the aggregate.

Q. Okay. So now -- now we'll focus more on the 2023 and 2021 reports.

So in the 2021 report, there were 57 plants that reported, if I pulled that out correctly. Does that sound right to you?

A. That was plant product observations. So, yes. It's a combination of -- of individual plants and the

specific products that were reported as being produced here in the NDPSR. So, for example, a plant that made nonfat dry milk and butter would be counted as two observations.

Q. Okay. So I'm looking at page 4 of that report, and you don't necessarily need to look at it unless you really want to, but I think there were 61 plants broken down by product, and 57 plants -- so as I -- as I tried to figure this out, I got 57 plants and 61 plant product observations.

A. I don't believe that there were that many total plants. I would have to --

Q. Okay.

A. -- go back and check that. That's -- that's a large number.

Q. Okay. I will take your take your word for that. I think you know better than I.

In the 2023 report, you had 45 plants, correct?

A. Well, Ryan, do you know what page you pulled that from?

Q. That's what I'm looking for.

A. Somewhere I know I described the number of -- I think it was firms, plants, and plant product observations.

Q. The problem is that we have about four different documents to look at.

A. Yeah, okay. Maybe.

Q. Here we go. At the bottom of page 4 of the

report, not your testimony.

A. Okay.

Q. Okay. So the last paragraph, there were 15 participating firms with ownership of 45 different plants, and then later in that paragraph, a total of 55 plant product observations.

A. Okay.

Q. Okay. Now, there was also a -- and I have -- really don't recall if this was something you stated or whether it was written in a statement -- approximately 15 overlapping plants.

A. Yes.

Q. Okay. Are those plants or plant product observations that overlapped?

A. Those would be plant product observations.

Q. Okay. And --

A. So they would correspond with this 55.

Q. Did you state where that overlapping occurred in terms of which products overlapped?

A. I didn't. It was all four products. I don't recall if there was a predominance of one or more products, but I think it was fairly uniform. It wasn't a high number. I would have hoped for more overlap but --

Q. So I want to ask about the process for soliciting the plants to participate in the 2023 report.

And in your 2021 report, you stated that you referred to your proprietary list of plants. Based on your experience you invited 153 to participate?

A. Uh-huh.

Q. And you explained that on page 3 and 4 of your 2021 report.

For the 2023 report, did you send any invitations to plants to participate in the 2023 report?

A. I think that I did. Although, honestly, I can't recall as clearly. I do know that IDFA had urged membership, which at the time was, you know, most of the plants that we would have had in the report, to participate in this.

Q. And I know you said you don't recall, so this is going to be an awkward question, I suppose. Would you have sent an invitation to the 96 plants who didn't respond to your 2021 invitation and asked them to consider participating this time around?

A. I was trying to make sure that we got at least the plants that we had last time and then pick up some additional plants. So I was more focused on assuring that we had the same plants, if we could, so we could look at how costs may have changed over this intervening years, and then pick up some additional plants as well.

MR. MILTNER: Your Honor, I have a document I'd like to ask the witness some questions about. Could I approach him with this?

THE COURT: Yes, you may.

MR. MILTNER: I do have copies for your Honor and the rest of the room.

THE COURT: Is this something you want marked?

MR. MILTNER: Yes, please.

THE COURT: Mr. Miltner's handing this document out. Let's go ahead and mark it for identification as Exhibit 179.

(Thereafter, Exhibit Number 179 was marked for identification.)

THE COURT: I guess we should have some description. It's a February 16th, 2023, e-mail from Chris Allen, A-L-L-E-N. It doesn't -- the "to" line is redacted. The subject line is "FMMO Update and New Stephenson Cost Survey." 179 for identification.

MR. MILTNER: I trust you over me, your Honor.

And were those comments off the record or on?

THE COURT: That should be on the record, just like we always do, an identified document. Yeah. This witness has been shown the document, and Mr. Miltner's going to ask him some questions about it, as I understand.

MR. MILTNER: I am.

BY MR. MILTNER:

Q. And I would also -- I appreciate your Honor characterizing the document. I really would like to focus on what appears after the forward, and that is that this is an e-mail from Michael Dykes, sent on February 16th, 2023, to himself with CC's and -- and a number of blind copies.

Dr. Stephenson, have you -- did you receive this e-mail by chance? Were you a blind copy recipient?

A. No. This is the first time I have seen this.

Q. In the very last paragraph, it -- the e-mail reads: "If you have any questions about your company's participation in the survey, we encourage you to contact Dr. Stephenson directly." And I have redacted phone numbers and e-mails.

Did any members of IDFA contact you directly about the participation in the 2023 report?

A. Yes. I did have a few. Most of them would have CC'ed -- in fact, I think all of them probably did CC a member of IDFA's staff. But there were a few plants -- and this is not unusual for me -- who are concerned about the proprietary nature of the data that's collected, and they wanted a non-disclosure agreement signed, so I was always willing to do that. And that was the nature of the direct contact from plants, you know, inquiring about the process.

Q. And I think you stated how important it is to maintain the confidentiality of firm information for your reputation and the integrity of the study?

A. I think it's critical.

Q. In the third paragraph of this e-mail, it reads: "In anticipation of a possible USDA hearing to consider possible adjustments to Make Allowances, IDFA and WCMA have commissioned Dr. Mark Stephenson to update his most recent cost of processing study to capture manufacturing data from 2021 to 2022."

This e-mail, having been sent on February 16th, I assume that you were contacted and commissioned prior to

February 16th by IDFA?

A. I had been contacted about updating this study to see if I was willing or prepared to do that. And, yes, I had been prior to this e-mail.

Q. And earlier you testified that you might have, but you don't specifically recall, whether you invited anybody to participate in the 2023 report, but you did testify that IDFA and WCMA urged their members to participate.

Other than the urging, which you reference, and perhaps your invitation, would there have been any other way for industry participants to participate in the 2023 report?

A. Anybody that would have contacted me and asked about it, or even if they had the link to the online application that did collect the data for me, would have been able to participate. They would have been included in here as any other plant, only if they made products that were NDPSR reportable and had been completed to my satisfaction.

Q. So if -- if a firm received the link somehow, and they clicked on the link, it would take them to the reporting software that you have included as an appendix and went through yesterday, correct?

A. Correct.

Q. Would they have -- would they have been required to have any specific access key or something in order to start inputting data?

A. No. Like some other protected sites, if you have

not been a guest there before, the first thing you do is to enter a user name and password. And when you have done that, you then have access to begin entering individual data.

Q. But they would have to have the link in order to -- that site -- I guess, I'm -- let me rephrase that, make it more of a question.

Would there have been a way for someone to locate the survey software without having been provided that link by somebody?

A. It's conceivable. The search engines crawl through websites and identify all kinds of things. And I did not put something on that page that says "don't index this" or "don't search here." But it was not a widely advertised link. Well, I didn't want to deal with a lot of mischief either.

Q. I can understand.

When did you complete the work on the 2023 report?

A. Oh -- I don't recall exactly the date, but it would have been in June. I mean, the final report was written up very shortly after.

I had urged folks -- this e-mail is not incorrect. I mean, it is quite correct. I had hoped that by April 14th we would have all of the entries. But as I mentioned the other day, not everybody gets things done quite as quickly as I might want. And we had a number of plants that said, would it be okay if we extend that deadline a little bit, and -- and I moved the goal post a

couple of times.

Q. And "June" is a perfectly fine answer for my question.

When you did complete the report, did you submit it to IDFA and Wisconsin Cheese Makers?

A. I did.

Q. Did you submit the report to anyone else?

A. I believe that it was circulated at that time. I was not trying to be closed or careful about that in particular. I suggested that they circulate the link that had the report posted on it.

Q. When you say "it was circulated," it was circulated by IDFA or Wisconsin Cheese Makers?

A. I posted the final report on a former website that I maintained at the University of Wisconsin. I was retired at the time but still able to do that much. And it was, you know, as circulated as people wanted it to be. So in other words, anybody that had known about that could rather easily download the report.

Q. Thank you.

On your 2021 report on page 3, you describe it as a working paper. And I'm going to break my almost promise. In 2026, that was a working paper, too, and in your testimony -- I'm sorry, 2006 -- in 2006 -- maybe we'll be here again in 2026.

In 2006 --

A. I won't, Ryan.

Q. In 2006, you testified, "In academia, we refer to

a working paper as something that is not the final paper on the entire project you are doing."

Is that a fair description of the 2021 report also?

A. No. I -- by the time that these have come out, I want to make sure that when they are released to anybody that they are what I would consider to be a final document. And the reason for that is that I have just discovered in the past that if you've got another plant that's submitted data, or two, or three, that might change, you know, reporting tables just a bit, you know, with that extra plant data in there, it just becomes confusing, because people start to reference two or three different working papers that have slightly different values.

Q. Do you have the 2021 report handy with you? Exhibit 158, I believe.

A. I think so. Although you referenced a page 3, and mine here starts with page 8 of 33. I don't know if I pulled something else off. But it's -- I have here Hearing Exhibit 158. To my point --

MR. MILTNER: Mr. Rosenbaum has handed me a copy of his Exhibit 158.

And, your Honor, could I hand this to the witness?

THE COURT: Yes.

Mr. Rosenbaum, did you want to say something?

MR. ROSENBAUM: This is probably unnecessary, but because there had already been a copy of this exhibit

entered as 158, we had originally planned to make it an attachment to another document, and that's why he has a copy that has a different numbering. But we're going to give him the official 158 so that Mr. Miltner's questions and -- will be -- have the same pagination as --

THE COURT: No problem at all.

MR. ROSENBAUM: -- what the witness has.

THE COURT: Smoothly handled. I don't think anyone is going to object. I also have a copy.

MR. MILTNER: And I appreciate Mr. Rosenbaum helping us out with that.

BY MR. MILTNER:

Q. All right. Dr. Stephenson, do you see the third paragraph on page 3 there?

A. Yes. "This report is considered to be a working paper."

Q. So the document that is Exhibit 158, is that indeed a working paper?

A. No. And I can explain I think why that's in there.

Q. Okay.

A. This was a few paragraphs of copied text from an earlier report. So copy and paste, that was an editing error on my part.

Q. Great. So the --

A. The final report that was posted on the website and made widely available through IDFA -- or not through IDFA -- through USDA and others was, in fact, the final

report.

Q. And then so I note the 2023 report does not refer to it being a working paper.

Is the 2023 report a final report?

A. Yes, it is.

Q. Okay. So, now, with respect to the 2023 report -- the next questions I have deal with -- primarily with NDPSR.

So in the 2023 report, on page 4, you stated, "In the 2021 study, plant selection was more targeted. It was felt important to assure that plants producing products" -- I'm sorry -- "producing product that may be included in the National Dairy Products Sales Report, NDPSR, which determines the product prices used in the PPFs should be solicited."

I didn't see a similar statement in your 2023 report, but from your testimony, can I conclude that that was still an aim of the 2023 report?

A. It was. In other words, I didn't want to go back to earlier criteria that we used, such as geography and plant size, that type of thing, or frontier of best practice plants. This was meant to be NDPSR targeted operations.

Q. So even though you targeted plants in the 2021 report that produced the NDPSR-reportable commodities -- and I'm looking now at page 4 of Exhibit 158 -- I see that you targeted plants that produced 640-pound block cheddar.

A. Yes.

Q. Which is not an NDPSR product, is it?
A. No.
Q. Why would you want to survey those plants?
A. This had been a request from USDA to look at or include those, or not exclude them from the 2021 study that was done. Not that we would use that in reporting here, but if it was decided that this is something that you might want to include, could we have the beginnings at least of a benchmark of those costs.
Q. Were plants that produced 640-pound blocks actually responding -- were they respondents to the 2021 request?
A. Yes. But all of the plants that produce 640s also produced 40s.
Q. Were the costs of those plants producing 640-pound blocks segregated from the cost of producing 40-pound blocks?
A. The plants weren't segregated. The costs up to the point of packaging were not deemed to be different or I didn't treat that differently. And likewise, on the general ledger post processing, you know, for table summary data, would have been included packaging costs, and handling of the 640s were not.
Q. Did any of the plants that produced both 640-pound blocks and 40-pound blocks attempt to self-allocate their costs between those two products?
A. I don't recall. I would have to go back in to take a look and see. You may recall yesterday as we were

going through some of the screenshots, that if you reported cheddar cheese processing as a product in your plant, then the next page also allowed -- or began to ask questions about what package sizes were produced. So 40-pound blocks could have been one of those. 640s could have been one. 500-pound barrels could have been one. Mammoth could have been an opportunity. But, you know, we're not -- and we wanted to take all of those plant products then and be able to ask specific packaging costs for the different package sizes if we're interested in them.

Q. So you have hit on a term I'm not familiar with. What's a mammoth?

A. It's a large wheel of cheddar cheese. They can be of various sizes from probably 50 pounds to 250 pounds or greater.

Q. Similar to a Parmigiano Reggiano wheel?

A. Yes. They are usually made for specialty purposes.

Q. Just curious, did anybody report those to you?

A. No.

Q. Okay. Okay. So similarly, Table 1 of Exhibit 156, you targeted nonfat dry milk or skim milk powder?

A. Table 1 of 156.

Q. Sorry, did I say -- it is the -- 158, my apologies.

A. 158. Okay.

So question again, please, Ryan?

Q. Yes. You targeted plants producing nonfat dry milk or skim milk powder?

A. Yes.

Q. Is it your experience that the costs for skim milk powder are very similar to those for nonfat dry milk?

A. Very similar. The make could be different, I understand that. If you are reblending lactose back into a finished nonfat product, that may be more expensive than -- than pulling protein out in the liquid form ahead of time.

Q. Did you similarly exclude the packaging costs of plants that were making skim milk powder in the same manner as you did for plants producing 640-pound blocks?

A. No, not necessarily. If -- if they were 25-kilogram bags or 50-kilogram bags or totes, then that would have been included as well as being not significantly different packaging.

Q. And then finally in the same table you list plants producing dry whey or WPC.

Did you -- did you have any plants that responded that produced WPC?

A. I did, but not enough to report.

Q. So there was no reporting of WPC -- what do you mean by "not enough to report"?

A. I would not report data if I didn't have at least three plants that had reported data, for confidentiality reasons.

Q. Is it true that WPC is a very different product from dry whey?
A. Absolutely.
Q. That the difference between dry whey and WPC is very distinct?
A. It is very distinct. I understand the process of manufacture as well. This, again, was a request on the part of USDA, could we possibly include that and take a look at this, but it was not reported to USDA because there were too few to report.
Q. Did any of the costs of manufacturing WPC get included in the results of the 2021 study?
A. No.
Q. Okay. So the eight plants that were reported, those were all exclusively dry whey producers?
A. Yes.
Q. With respect to nonfat dry milk, you had an exchange yesterday with Mr. Rosenbaum about an AMPI plant that produced high heat nonfat.
Do you recall that?
A. I do.
Q. And if I heard correctly, you concluded that the AMPI's plants costs were at or near the median of the total reported plant costs; was that correct?
A. That's correct.
Q. And so including or excluding that specific plant had a negligible impact on the overall survey; is that right?

A. That's correct.

Q. You also stated that that AMPI plant producing high heat nonfat dry milk was included initially because its response to you indicated only nonfat dry milk and didn't indicate whether it was high heat or low heat; is that correct?

A. That's correct.

Q. Do you know if there were any similar ambiguous product designations that occurred with other reporting plants?

A. I'm not aware of them. It -- it is a possibility. This is one of the places where audited reporting might be useful to have for something like that. I was not aware that that was a high heat only plant. And, you know, the reporting on it should have been nonfat dry milk high heat, but it was just nonfat dry milk.

Q. And the next question I had, which I'll read for the record, but we'll skip is: Is this the kind of error that one would expect to avoid with an audited survey?

A. Yes.

Q. Okay. With respect to 40-pound blocks, I believe it was Agri-Mark's witness earlier testified that they produced 40-pound block cheddar, and then depending on the quality of the make, they will decide what they will sell as a commodity and what might be aged to become Cabot cheese.

How would a situation like that be handled in your survey, where a 40-pound block manufacturer, clearly

making a 40-pound product, which might or might not be reportable, how do you handle that type of inclusion in your reports?

A. I don't make a distinguish -- or I don't distinguish that kind of difference in plants that are producing product for long-term aging or something a little bit different. You may recall a discussion we had yesterday as well where I indicated that long-term storage is specifically excluded from this. So those costs, I don't want to try to capture.

But my understanding is that in these plants where we're looking at identifying product that are candidates for long-term storage, is that you plug or sample the block, and you would have an expert make a determination as to whether they think this will take on aging of as many months as you are hoping to get on it.

Q. And in questions you answered that the volume of cheese and whey reported in the 2023 report was approximately 50% of the NDPSR surveyed volume.

Is that -- did I get that correct?

A. Yes.

Q. And --

A. Excuse me, of the NASS volume.

Q. Of the NASS volume. Very good.

And 80 to 85% of the butter and powder, correct?

A. Yes.

MR. MILTNER: Your Honor, I have more questions, based on how long we have gone, 20, 30 minutes. We have

been going an hour and 45. I don't know if the court reporter would like a break.

THE COURT: I was going to say, I think we have been going an hour and 45 minutes.

Let's take a 15-minute break. Let's come back at 10:00.

(Whereupon, a break was taken.)

THE COURT: Back on the record.

Your witness, Mr. Miltner.

MR. MILTNER: Thank you, your Honor.

BY MR. MILTNER:

Q. You spent about an hour yesterday, thereabouts, with Ms. Hancock going over Appendix A, which I appreciated because I think it helped give us greater insight about the methodology and what the plants were looking at when they provided you information.

And I was wondering, as we went through that and we walked through some of the questions and decision points, did any survey participants reach out to you through this process as they completed the survey about any issues with the online model or the online system?

A. Absolutely. There were a few places where the model couldn't proceed past pages with it, and part of the reason was that, I did do this fairly quickly. I didn't have the chance to harden the model and make sure that people couldn't do things that they shouldn't have been doing. And I think I gave the example yesterday of peeking ahead, and when it did that, it did save pages

without data in it and would cause a problem for that user to not be able to enter that data until I purged the page.

So there were a couple of things. That wouldn't happen normally if there had been enough time to completely debug a model like that.

Q. About how frequently, once you've got a report back from a plant, did you have to reach back out to get additional clarification on an outlier or an allocation question or anything else that caught your attention?

A. Maybe 25% of entries. Some folks I think managed to enter data in a straightforward manner, and the glance at the data, looking through the information didn't raise any red flags for me. So, you know, it was data that I would flag as being accepted.

Q. Along those lines, you have in your testimony the line, "There are several key cross-checks in the data collection." I don't know if you have talked about some of those cross-checks.

Could you let us know what you are looking for or what those cross-checks might be, please?

A. One of the cross-checks, and a primary one I mentioned yesterday, and that was the use of doing this mass balance calculation there. And the mass balance calculation just simply says, have we accounted for all of the components that we think came into the plant versus all of those that were sold out of the plant. And I think that that would be a fairly standard kind of accounting process to take a look at that.

And by the way, Ryan, this is one of the places where you may be able to do some yield calculations, and if you wanted to fine tune that, you could -- you could take a look at more detail asking just a few other questions that would let you get some yield parameter data.

There are other places where there are cross-checks. So, for example, you're identifying the pounds of dairy product by a package size that you produced over the course of a year, and then you are entering data as to how many pounds of this cheddar product you manufactured in the each of the 12 months. And those numbers need to be the same. They aren't always the same, and if they aren't, then I need to understand why. You know, I mean, what -- what is there that's different. And there are five or six of those kinds of cross-checks throughout the data entry form.

Q. When you are doing the mass balance, do you get down to a level that is as granular as in-plant losses versus losses in shrink versus, you know, loss through fines at a cheese plant, or things like that?

A. I don't ask for those values, but, you know, I -- I would do much like you might in a federal audit where you are looking at shrink or overage in a particular plant. And to me, this needs to be within a pretty small tolerance. And for me -- I know what your question may be, what is a pretty small tolerance? 2% is something that I look at. And if it's outside that range, then it

seems to me that I have at least got to ask some questions.

Q. If it were over that, you would be asking, did you have a bunch of off-spec material or off-spec product that you had to scrap, or something like that?

A. Something like that, yes.

Q. After you talk about the cross-checks, you say, "Submitting intentionally deceptive costs would raise red flags and prompt questions from me."

Did you have any instances where you thought somebody was submitting intentionally deceptive costs?

A. I have never had that instance. I have had plenty of times when I got data that were flagged from -- from my screening processes, whether by these cross-checks or by the fact that they might be a statistical outlier of the body of samples that I have had by the time I'm done. And most of the time, it would be an innocent clerical error or omission, you know, of something that had not been included that -- sometimes I think we have folks in the plants that have very narrow job descriptions, you know, that are assigned this kind of task and maybe haven't fully understood what I'm trying to do with it. So it is almost like they are trying to fill out a form that they would fill out for a plant report or something to AMS but -- and a clerical error is certainly something that would be possible, and those are usually very obvious.

Q. So yesterday there was some cross-examination from Dr. Bozic, and you noted -- I think in your statement as

well -- an increased variance in the reported costs in the 2023 report compared to certainly the 2006 report, but also I think you said compared to the 2021 report.

What do you ascribe that increased variance to?

A. Well, the biggest variance that I witnessed was actually in the 2021 data. I mean it had been a while since I had done a plant study like this, but I had done many of them before. And in the 2021 data is when I first saw that the range of plant observations was quite different. I don't recall saying that 2023 looked a lot different than 2021. If it was, it was maybe a little bit different. But the variance is much more than it had been in the past.

Q. Dr. Bozic also noted, and I think this was his characterization, a bimodal distribution of the costs.

And I think you agreed that the distribution was bimodal; is that correct?

A. Tended to see clusters at both ends of low cost plants and high cost plants. And in the past, you normally saw something that was more like a normal distribution, where the body of respondents would be somewhere in the middle, you know, and the really low cost plants or really high cost plants tended to be few in number.

Q. Not to dive too far back into the way back machine, but that normal distribution is part of the statistical analysis you did in 2006, right?

A. Yes. I used to, at least, talk about the

qualities of the data that were there, some of those statistical measures.

Q. So if we think about a normal distribution and a bimodal distribution, and now USDA has to decide where do we peg a Make Allowance, which has been at the weighted average usually, historically.

. Given that the distribution is now bimodal, should that inform USDA as to where it might want to draw a line with respect to a changed Make Allowance?

A. A couple of things, Ryan.

First of all, when I have looked at what has been recommended in a decision from AMS, it's never been completely obvious to me how that decision was made because it did not necessarily reflect the average cost that I had reported or seen. You know, a lot of times I would look at that and recognize that it's maybe typically somewhere on the higher cost side of average but well below the highest cost plants.

So conceptually, with what you are saying, if they were to follow that, they might capture most or all of the low cost plants as being -- having their operating costs covered, well covered, and a few of the plants at the higher end not covered, by just the Make Allowance alone.

And I think that part of the danger is that we also assume that, well, then, many of these plants are not covering their costs, they must be losing money, just hemorrhaging money, you know. And I don't believe that's the case. Why would we stay in business if that were

happening? There are probably also plants that are selling their product at the higher end of the NDPSR price observations.

Q. Do you have any information as to the ages of the facilities that participated in the 2023 report?

A. No. I haven't been collecting that data. I used to collect that data years ago to at least get some idea of when the last significant investment in the plant was done.

I -- by the way, I haven't made that explicit in the 2023 report, but I have usually done that in the past to ask whether the plant had had any significant interruptions in operation during the course of the year. So if a plant had to be shut down for a week or a month or something else, for whatever reasons, then this may not be typical data that I'm receiving.

Q. That's an interesting point, which makes me wonder, if a plant didn't operate consistently throughout the year because it was a balancing facility, would that also skew the data?

A. No, I try to capture -- well, I mean, it may change that. I -- it's -- it's one of the conjectures that we might have as to why a plant operates at higher costs. They are carrying capacity that's not used all of the time, and, you know, that is certainly an additional cost.

I do try to ask enough questions to be able to look at, at least, the monthly differences in product

manufacturing out here, so that we can see whether the plant was providing a good deal of seasonal balancing. I don't look at inter-week balancing or collect data at that level.

Q. If a plant is seasonally balancing, would their fixed costs all be loaded on to the months in which they are producing product, or would you exclude some of those fixed costs?

A. No, their fixed costs would be allocated across the pounds of product that they produced in the 12 months.

Q. In response to another question from Dr. Bozic, you noted that you see plants being built where it doesn't matter if the plant is pooled or not.

Do you recall that statement?

A. I think so.

Q. Can you elaborate on that observation, please?

A. Well, there are places in our current economic environment and regulatory environment where there's really not much money in the pool to be attractive by the time you zoned out to the edge, perhaps, of the regulation that you would have access to. And plants are making investment decisions that really don't depend on this.

When I first started at Cornell University many years ago, we might have a firm, a company, that would realize, I have got customers for more product, I need to make more product, I intend to build a plant, where should I build it? And we would look at such things as, well, where do we see growth in milk production happening in the

country that makes sense to be a part of catching that wave?

And then we didn't get those kind of questions for a period of time. And this was when we found plants and dairy farms sitting down to talk together and saying, where do you want to make milk? You know, let's go put a plant and, you know, produce dairy products where it hadn't been before.

And so it is a different environment, and many of those regions are not finding that there's enough money available to be a pool plant, and farms appear to be okay with that.

Q. Can you give examples of states or regions where you see that occurring?

A. Well, in what was my own backyard, anyway, in the Upper Midwest, the I-29 corridor, in places where we have seen some significant plant investments, and not all those plants are pooling all the milk. They are making investments that aren't based on expected equalization payments.

Q. There's been testimony about large cheese plants being constructed in -- I think specifically was references to Texas, maybe New Mexico, and other locations in the west, maybe South Dakota as well.

Would you include those plants in that category?

A. Possibly. Some of that new capacity coming online I think will -- I would expect would change the behavior of milk movements across the South and Southwest where we

have seen -- that being a milk supply for the Southeast, it's quite deficit. If there's a nearby home, even if it's at a lower price, perhaps below Federal Order minimums in the area, could very well be the case that farms decide not paying that hauling cost into the Southeast would be an advantage.

Q. On page 7 of your statement I think you either directly or tangentially address that, where you stated there are "safety relief systems in Federal Orders that are expected to be employed when the system isn't working properly." And then you suggest that insufficient Make Allowance might be a reason -- or might be a reason plants depool to allow themselves of one of those safety relief mechanisms. You identified that as one of the safety relief mechanisms.

What are some others that you might refer to?

A. Well, depooling is one of the obvious ones, and ones that we can -- we can see in there.

I had two or three in my mind, and they are escaping me right now. Let me think about it for a minute, Ryan.

But depooling is -- is I think one of the obvious ones where a Federal Order system may not be operating as hoped for, but the safety mechanism is there to use as intended by, you know, the Federal Milk Marketing Order, should it need to be.

Q. You provided an example of a plant that might be located in the Southwest but supplying milk to the deficit

area in the Southeast just a moment ago.

I want to give you another possible example and ask your opinion on it. There was a producer here from New Mexico last week who is located in Clovis, or Portales, one of the two, but very close to a large cheese plant. And if the most significant available Class I market to that part of New Mexico would be Dallas, say, a very substantial distance, several hundred miles, but still within the same marketing order, if that producer or that producer's cooperative determines that it is more economically advantageous to sell milk to a Class III plant locally rather than to haul within the order a great distance at a lower return, would that speak to a need to change Make Allowances or perhaps a need to look at Class I differentials?

A. Could be a variety of reasons, and I think that both of those would need to be looked at. If there is not enough money in the pool to create an equalization payment for milk that's moving in a certain direction, then that may need to be looked at with Class I differentials.

And I think you have to be a little bit careful to go back and ask yourself questions, and I'm not sure I want to write policy, but what are the orders trying to do? If they are there to help assure that we have at least the opportunity for access to fluid milk, or fluid milk plants, or convince milk to move in the direction where it's most needed, I think our Class I differentials have certainly attempted to do that. They may not be

accurate for time and place, but -- but they are moving milk in directions where it is most needed.

And by the way, I didn't say the differentials were big enough to get it there to move in the direction in which it's needed.

Q. Okay. We'll make sure that's noted in the record.

In your testimony, Exhibit 176, on page 6, in your concluding comments, you state, "I would also suggest that any parameters in the product price formulas, such as Make Allowances and yield factors, have periodic assessment to assure validity of price announcements."

A. I'm just about there. Page 6 you said?

Q. Page 6. Second to the last paragraph, last sentence.

A. Okay.

Q. If we oversimplify the end product formula, it's the product price minus the Make Allowance times the yield gives you the milk value, right?

A. Yes.

Q. So the product prices --

A. Oh --

Q. Go ahead.

A. I just wanted to interrupt you for clarification. You're jumping straight to milk prices as opposed to component values.

Q. Fair.

A. Okay.

Q. Gives you the value of -- gives you the value of

the component. That's a good clarification.

We're having discussions in this hearing about what should or shouldn't be included in the product price, but we know those numbers, once they are surveyed, they are fresh, right? They are a week old, correct?

A. Yes.

Q. And we're addressing Make Allowances in this hearing, so they will be hopefully less stale than 15 years.

If you have fresh price data and relatively current allowance data, and your yield information is still 10, 15, 20 years old in terms of its underlying assumptions, does your component value that you end up with reflect the real value of the milk?

A. I would stand by my statement here, you know, that does indicate that we should look at all of the parameters in those formulas. So there are yield factors, and in the case of the somewhat more complicated protein value, we have butterfat and protein interaction factors in there.

Q. I'd like to ask about your ROI assumptions in your report. You mentioned you recall double-digit inflation and the corresponding high interest rates that they brought. And I vaguely remember as a young kid getting about 8% on my savings account and not understanding why that didn't continue on forever, until I figured out why.

A. Blew your whole retirement plan?

Q. At age four I already had it planned out, and here I am working.

Are you familiar with the five-year break-even rate that the St. Louis Fed publishes?

A. I'm not sure that I'm explicitly familiar with it. The five-year break-even rate?

Q. It is a --

A. Is this a five-year bond treasury bill?

Q. No. It is the St. Louis Fed's projection of the inflation rate over the next five years.

A. Oh. No, I'm not familiar with that. I guess that my fumbling here should have been an indication.

Q. That's okay. We can jump over that.

But it's been 15 years since we have updated Make Allowances, correct?

A. Yes.

Q. And hopefully we don't do that again, but if we don't, and you -- your model, if it were to be adopted as the basis for Make Allowances solely, wouldn't you be creating a 15-year bond payment to milk processors with a 5.5% coupon?

A. No. I don't think that that's quite right. We did talk with -- a little while ago with Nicole about, you know, the imputed return on investment that we have in plants. But it's more than just that when we're taking a look at what the plants actually return out of this. It -- individual plants don't receive the Make Allowance or the portion of that that is there for the returns. They buy products and milk at minimum prices and premiums and discounts from time to time. They also sell products

that are not just at that limit. So I'm not sure that you can impute that that is the expected return for the plant over a long period of time.

Q. If -- if the Moody's index, though, reverts back to where it was in January of 2020, would we be overstating the ROI factor, though?

A. For that long a period of time? Yes, you would. I do think that these costs ought to be considered and monitored. And costs do change, both up and down. So I have been a strong proponent of that, let's capture that on a more frequent basis.

Q. And likewise, if the Fed raises rates another point and a half, then your model would --

A. Would understate.

Q. -- would understate it, right?

A. Yes.

Q. Do you have any information from the participants, or just from your industry knowledge, if cheese manufacturers use ROI like this to gauge their profitability rather than EBITA or margin on sales or something like that?

A. I'm not aware that they do.

Q. If you look at Exhibit 177 on page 13. This is the summary costs for butter processing.

A. Okay. 13 of 27. This is the processing program? Exhibit 177.

Q. Is that IDFA Exhibit 1?

A. IDFA Exhibit 29.

Q. I'm sorry. I was looking at the -- 178, my apologies. It's only going to get worse as we add more Exhibit Numbers.

A. Okay. Page what?

Q. 13.

A. Yep.

Q. I'm looking at -- well, first of all, the row of low cost plants and the row of high cost plants, is that the weighted average of that particular subset?

A. It is.

Q. Okay. So essentially you have set a 25th, 75th, and 50th percentile, right, in those three rows?

A. No, not necessarily.

Q. No?

A. What's done is that I rank all of the plant observations, and I'm looking for, you know, the median break. In this case there were 13 plants. Okay? So the break would have been seven on one side and six on the other. And when I make that break, it's not that I throw the extra plant into low cost or high cost, necessarily. I look to see whether there's a natural break in the data and whether it favors that plant going into low cost or high cost. So that's my characteristic of it. If there were 12 plants, it would be easy, six in, six out. And then I do a weighted average calculation of each of these cost centers across cost lines.

Q. Okay. If I look at the return on investment column, the low cost plants show an ROI of $0.0269, the

high cost plants show an ROI of $0.0618, and all plants $0.0392.

Does it seem anomalous that the plants with the highest costs get the highest return on investment?

A. Well, these are plants that would have reported a higher market value for assets. And, you know, this is one of the places -- I have tried to explain that a number of times, that it is a bit of a decision on the part of the plant what they think they could sell this plant for. And I don't throw a plant out because they reported too low a value or too high a value. I have never bought or sold a butter plant in my life. I have some ideas about what the cost of a new plant might be or perhaps even the sale of existing plants. But if it's an outrageous number that's returned to me, then I would at least ask about that as to, is this justifiable? So this does reflect self-reported value of assets.

Q. In your work at either Wisconsin or Cornell, did you participate in any studies on farm profitability?

A. Yes.

Q. What would be a reasonable ROI for a dairy farm?

A. I have never heard a dairy farmer say that there is one. It's always more.

Q. Another joke there that I'll tell you off the record.

A. But we saw Dr. Wolf's report, and I think that the body of data that he was reporting on that observed that it was about 6.1%.

Q. You think that is regularly achieved by dairy farms?

A. I think that it is regularly exceeded by some farms, and it's an aspiration for others. So there is quite a difference, there's no question about it. I -- I do know many farms that would simply say, if that was what I expected long-term in the way of an investment return, I'll look for a different industry or business to work in.

Q. I want to talk about degree of transformation, and you have noted the 2023 report doesn't have the degree of product transformation allocation method used. It is in the 2021 report.

I believe that in presenting your statement you testified that you believe the degree of transformation analysis was valid; is that correct?

A. I do, as a concept.

Q. And I think there's a quote in your statement that you favor the weighting of unallocated processing costs by the degree of transformation of the products as well as the pounds of milk solids processed.

A. Yes.

Q. Why do you favor that approach?

A. As I mentioned two or three times in testimony, I have seen cases where we have had plants that maybe had unusual sales opportunities, but they were selling quite a bit of some of their components as very lightly transformed products from the plant. That can skew the products of interest, the ones that are highly

transformed, like skim milk powder or others, to where you undervalue those -- or those costs for producing that product.

Q. Where you stated in your written testimony that you favored the weighting of unallocated processing costs by the degree of transformation of the products as well as the pounds of milk solids processed, was there any change between 2021 and 2023 about how you allocated costs across the pounds of milk solids processed?

A. No. That's done exactly the same way. You look at the total pounds of solids, the butterfat and the nonfat solids in the products, and based on the percentage in those products of total milk solids, then you would allocate based on that. Not different between any of these studies.

Q. You have answered a few questions about this topic before, but I wanted to dive a little further.

You stated that industry participants had asked for a return to the previous methodology without the degree of transformation applied. And I think, not written, you said there were groanings from the industry, which I liked, and you gave some indication as to where those objections came from.

Were any of those objections or requests to change the methodology from members of IDFA?

A. Both. And when I say "both," I mean IDFA and National Milk Producers Federation.

Q. When IDFA commissioned you and Wisconsin Cheese

Makers commissioned you, did they request that the degree of transformation analysis not be included?

A. Yes.

Q. And I think in response to a question from Ms. Hancock, you said that those groanings might be probably directed to the sample size and the data rather than the methodology.

Did I get that correct?

A. Yes. Well, not the sample size, but the sample.

Q. Okay.

A. So in other words, different plants.

Q. So the e-mail we have from IDFA acknowledges that they have commissioned you to perform this analysis in order to set Make Allowances, and they asked that this valid analysis not be done, correct?

A. They asked that I return to the analysis that I had used in the past and which CDFA had used.

Q. Okay. So looking at the 2023 report, on page 10, where you start making observations, and you begin with nonfat dry milk, you state that reported costs per pound declined by a little more than 6%, but comparing the non-transformed weighted average in the 2023 study, $0.275, with the non-transformed weighted average values for the 2021 study, $0.2154, the nonfat dry milk processing costs were increased by 12%.

So does that mean that if you maintained the degree of transformation analysis, the reported costs would have decreased from $0.293 to $0.233?

A. Let me look.

Could you restate your question?

Q. Sure. I think I may have my math wrong. Let's take the numbers out.

A. That makes math easier.

Q. It does.

If you maintained the degree of transformation analysis, would the costs for producing nonfat dry milk have shown a decrease between your 2021 report and the 2023 report?

A. Theoretically, the transformation number for butter, as a good example, is smaller than the degree of transformation for nonfat dry milk, and leaving that in there would have increased the value for butter and decreased the value for nonfat dry milk.

Q. So if we compared the transformed cost in 2021 to the transformed cost in 2023 --

A. Yeah.

Q. -- would that have shown a decrease?

A. It might have. And this is one of the reasons I made the comment about the sample matters, because we had different plants in the two studies doing different things. So in one case if you had a few plants that had lightly processed products in one of the studies, and you didn't have those plants in the other study, then that degree of transformation may look quite different. And that's why I did try to indicate that I felt this was more of a sample impact than it was just the degree of

transformation itself. I think the math is fairly straightforward in the transformation, but, again, it's being obfuscated to some extent by the sample itself.

Q. The transformed cost in 2021 for cheddar was $0.2476. Do you have a transformed value for cheddar costs in 2023?

A. No, I don't. I didn't do those. As I mentioned, I was asked not to and to return to the previous study, so I didn't bother doing that.

And that wasn't because I was trying to hide anything, Ryan. I was just not looking for any more work.

Q. I would not have expected that you would have done so.

So the whey processing costs that you report are $0.3361. Now, for the last few months the NDPSR survey dry whey prices have averaged around $0.26, and the range of costs you report are $0.2848 to $0.3952.

So if the value of whey in the market is $0.26 and the make is $0.336, why in the world are these plants making whey?

A. I would assume that disposal costs or the lack of the equipment to make other whey products is not available to the plants, or this is simply viewed as being a short-term phenomenon. But we have seen that before where the implied value is negative. I mean this isn't -- would not be the first time. We have seen that happen before.

Q. Do you -- do you look at the weekly NDPSR reports?

A. Not anymore.

Q. How long has it been since you looked at them?
A. It's been a little while. I mean, I'm roughly aware of what's happening in the marketplace, but really not engaged like I was a while ago.
Q. Are you roughly aware of any reports that whey production is declining, dry whey production is declining?
A. Not recently. Dry whey production has declined a good deal over the past many years. It's transferred to higher protein whey products.
Q. Okay. So just to recap a couple things. Your 2023 report had a smaller set of observations than the 2021 report, correct?
A. Yes.
Q. And as you noted often, the sample matters in terms of the usefulness of the data reported, correct? Or the conclusions reached perhaps is more accurate?
A. Correct.
Q. Of those plants that did report, fully two-thirds didn't participate in the 2021 report, correct?
A. About that, yes.
Q. Those new plants that did participate were identified by an e-mail from IDFA's CEO to its membership and maybe an e-mail from you, correct?
A. Yes.
Q. And the 2023 report does not include the degree of transformation factor which you believe is valid, correct?
A. Correct.
Q. And you abandoned using that at the request of

IDFA who commissioned you to perform the research, right?

A. It was the request, yes.

MR. MILTNER: Thank you. That's all I have.

Could we move the admission of the e-mail that we marked as 179?

THE COURT: Any objections?

MR. HILL: I do.

THE COURT: You object?

MR. HILL: I am objecting just because there's no one to authenticate this document. The doctor has said -- Dr. Stephenson has said that he never saw this e-mail before today. There's no witness who can verify that this document is authentic.

MR. MILTNER: That's okay. Mr. Allen will be here later in the hearing, and we can have him authenticate and more for admission then.

THE COURT: Let's do that. Let's -- everyone help me remember to do that.

MR. MILTNER: I won't forget.

MS. HANCOCK: Your Honor --

THE COURT: I can imagine what you are going to say, Ms. Hancock.

MS. HANCOCK: You can imagine? Well, maybe I shouldn't say it, but I'm going to say it because I just want to make sure that we're treating equitably all of the documents that we're offering for admission into the record. And we have other exhibits that attorneys just made up and weren't even accurate, and we allowed them

into the record as exhibits. And my concern here is that now we're applying a higher standard to an e-mail that this witness has testified about, and that seemed to be the only standard we applied previously.

And for the integrity of our record, I feel like we have to apply the same standard for all of our exhibits that are admitted, whether, you know -- just so that one's not weighted more than the other, because I have serious concerns about the integrity of previously admitted exhibits and the value that they have.

And under -- under your authority, we have to have you actually state on the record that you are allowing our arguments to be included in the transcript in order to maintain these comments in the transcripts, because I think the rule provides that only your ruling is in the transcript, not our actual arguments.

THE COURT: No, I'm ruling that your arguments can be in the transcript. Let's make that clear, yes.

MS. HANCOCK: I appreciate that because I think that's important for our record.

But I have serious concerns about not applying the same standard across all of our exhibits.

THE COURT: Yeah, I hear you, and that's why I -- I think you were going to say. I mean, I think the ultimate determination of what's valid and appropriate evidence lies with AMS or, you know, the Secretary acting under that delegated authority. I want -- I think I want any of these things to stay in the record so that they can

consider that. I've thought about making it an offer of proof for instance.

I think, when -- I mean, these are documents used in aid of cross-examination. You can show a witness virtually anything to refresh their recollection. And as I understand it, if someone presents something and goes through it and says, this number came from here, that number came from here, would you agree, and then you have -- I think having it in the document does not really change whether you asked it orally or not. And I think -- you know, I think that that's basically okay.

Something like this -- I guess the mischief I see is when something comes into the record, it is sort of there for all purposes, and this is an e-mail with all sorts of things in it, names and things like that. So I think it really should be authenticated.

But at the end of the day, I mean, I'm happy to make my ruling on it, and then it is really up to AMS. In this case AMS objected to it coming in without being authenticated.

So, yeah. I mean, if you want to revisit the earlier one. I'm guessing you don't.

MS. HANCOCK: I'm happy to revisit the earlier one. I don't know if you can unring a bell though, so --

I will say -- I will note just for the record, USDA and National Milk both objected to the -- I don't remember the exhibit number, but it's the one that Mr. Rosenbaum created himself and asked a witness -- asked

Dr. Vitaliano -- or someone, I don't actually remember who -- to talk about the document. And I think that we both objected on similar grounds, so --

THE COURT: Yeah, I do remember that. And I have had a chance to, you know, think harder about that and do some research. And frankly, I guess I would ask the -- actually Mr. Rosenbaum is standing up. I do want to hear some argument on this because I think it's a legit matter of practice and procedure for the this hearing.

What -- we have a big history of these cases in the past, and I want to stay consistent with what we have done in the past here.

Has this come up in previous hearings that people have been involved in? What were the rulings then? I mean, I haven't had the ability to research that.

I'll let Mr. Rosenbaum -- should we let you speak first, Mr. Rosenbaum? I want to hear further on this.

MR. ROSENBAUM: Well, partly I'm standing out of the motivation that we have 175 exhibits in the record now. I really don't want -- I do not think it behooves us to revisit their admission. You have made your decisions, and if people want to challenge the reliability, they can do that in their briefs.

And I think obviously, yeah, we are going to be putting on IDFA witnesses. I mean, Mr. Miltner will have plenty of opportunities to ask questions regarding the e-mail he's put in, and probably has his own witness who can do that as well. This is not a material -- that

particular document does not present a material challenge to counsel, and he's not objected to it, and I just feel we should continue on.

THE COURT: Yeah, move on?

MR. ROSENBAUM: Move on, yes.

THE COURT: Well, I think you are right about that. I don't think there's any -- I don't need to make a decision on whether this document is admissible right now because Mr. Miltner's offered somebody to authenticate it, and I think when he does, it's perfectly admissible.

MR. ROSENBAUM: I mean, no one had any questions about the nature of the document that was used with Dr. Vitaliano, and your Honor explained why he found it helpful personally. I thought it was helpful. I think it is helpful in the record. In any event, I think that's water under the bridge at this point. And I think we should allow Dr. Stephenson to complete his testimony and move on.

THE COURT: Well, I can live with that. And, you know, I do the best I can here. Wouldn't be the first time I have been reversed. And, you know, I hate to say this on the record, but they do say consistency is the hobgoblin of small minds, right? I will try my very best to be consistent.

And I do not -- we do not have the transcript yet. I suspect it would behoove anyone using a document they have created to -- in that case, the document you used to cross was not a document that was being presented as, you

know, this is a piece of evidence that somebody else created, or here are some numbers, you know. And I think you probably went through and authenticated what was in there, you know, and you proved at least far enough that -- Ms. Hancock's shaking her head, so I take it she disagrees.

Mr. English.

MR. ENGLISH: So without being able to provide a specific example over the last decades that I have done these hearings, I can assure your Honor and others that there have been demonstrative exhibits.

I think this is a demonstrative document, and I thought your ruling did not say that it was being admitted for the truth of its purposes. It was there, and since it had been referenced, it was appropriate to be along with the record for that purpose.

To the extent that there was examination that suggested, maybe, I don't buy into the argument that it was discredited, but to the extent that was there, there was an examination, and I think your ruling was correct then.

I think, frankly, we're now spending a lot of time on this issue when the reality is that the document that's been marked as Exhibit 179, you know, is going to come in at some point, whether Mr. Allen is here Friday, or thanks partly to this argument, next Monday, it's going to happen.

And besides that, you know, it leaves Mr. Brown,

who is CC'd on the e-mail from Mr. Dykes, will be testifying sometime this week.

So I think, you know, we're spending a lot of time on that document that we don't need to spend, and I am perfectly happy to move on to further examination of Dr. Stephenson.

THE COURT: Well --

MR. ENGLISH: I won't cut off Ms. Hancock, obviously if she wants to respond. But I think at some point if -- and I also agree with Mr. Rosenbaum, if we're going to start revisiting one exhibit, then we almost have to revisit others, and I think we may be here a long time.

THE COURT: Well, I think everything else has been admitted, and I don't remember --

MR. ENGLISH: Well, but if that ruling had gone differently, we may have had different reactions to the exhibits that came before, your Honor.

THE COURT: Well, that's true.

MR. ENGLISH: So we -- you know, in essence, since that exhibit, there have been other documents. I just -- I think that it's admitted for -- I think the typical answer is it's admitted for the weight the Secretary will give it.

THE COURT: Well, yeah. And I do feel that way, which of course that could be true of anything I admit. But that one in particular, yes, because I'm not the ultimate decider here.

The reason I wanted to have this discussion on the

record is to provide guidance going forward to people, and Ms. Hancock raised a legitimate concern about consistency, although I think we are being consistent. We're pretty much letting in everything, it looks like to me. And then -- but -- and I don't -- I -- you know, I don't want to -- I don't want to do that. I mean, I don't want to make a ruling in the first instance to be of help, I guess, to the Administrator.

MS. HANCOCK: Your Honor, it is really truly only the consistency. I understand that USDA will give it its weight.

Two things I want to note. One, the document that I'm referring back to -- and I'm sorry, I don't have the exhibit number -- but my -- you know, one of my largest concerns is it was created by an attorney for a -- you know, that's representing a party here. It was titled that it is an agreement between IDFA and National Milk. No agreement has ever been made.

Mr. English just said, well, it's not being offered for the truth of the matter asserted. It doesn't matter, that's an evidentiary ruling based on a hearsay determination standard. Once it's admitted, it can be used for anything.

And I am not just concerned for the integrity of this record, but what we see is, is that parties in subsequent hearings will pull documents and portions of a transcript out of a record and use it as binding precedent going forward.

So let's fast forward 15 years to another hearing in the future, and somebody now has a document in the record that's been admitted as evidence. And once it's admitted, it's not admitted for a limited purpose, it's being admitted as -- as evidence of the record, and it's titled that it's an agreement between two parties.

Now, certainly somebody can try and put it into context, but you're somewhat beholden to the room having enough memory of the event and the context within which it was admitted to put it back into context.

So that's my concern with the earlier ruling.

THE COURT: Uh-huh.

MS. HANCOCK: My concern now, for purposes of this, is that we're now saying, hey, you have to go authenticate this, Mr. Miltner, before we're going to admit it.

Well, there's no way that any of our witnesses can authenticate what Mr. Rosenbaum created and put into the record, so we had zero authentication for -- for that document, but now we're saying, you have to go authenticate it for what it is now. And, now, we -- you can't apply the same standard unless you just let it in.

THE COURT: Well, I'm letting it in. I mean, we'll authenticate it right now.

You produced that document, didn't you, Mr. Rosenbaum? You created that document, the previous document?

MS. HANCOCK: He's not a witness.

THE COURT: Well, we can swear him in and make him a witness. I don't think there's a problem with that. He admits that he took numbers from National Milk and numbers from his own client and was trying to explore, like, what are the differences here.

MS. HANCOCK: I understand --

THE COURT: He asked the witness about that. Is this my number? Is this your number? If the witness said, I don't know your number, he said, well assume for purposes of questioning, now, if this were my number would that be a big difference? Do you have a difference with that?

I mean, and as you said, I mean, you would be willing to -- to accept the narrative cross-examination of his words, and I don't see a big difference between that being in paper. I don't think anyone's really going to assert that National Milk and Rosenbaum's client have an agreement just because he -- a document that the lawyer created says that up at the top.

MS. HANCOCK: I mean, I do, I think that you can't -- my point is that you can't authenticate it through an attorney who represents a party. You can authenticate it through the witnesses that testify about a document. It was created by an attorney and given to a witness.

My only point here is to raise the consistency and treatment of the exhibits for authentication purposes, and if Mr. Rosenbaum can have a document that's admitted that

he created, that's titled that it's an agreement, when there is no agreement that anybody has ever testified to that, then I think that that is a different standard than what we are applying to the -- to the e-mail that Mr. Miltner just put before the witness.

And as I recall, the standard that we applied previously was if the witness testified about the document, and it's in the record, and there's an exchange about that document, that you wanted the document to be admitted so that the record was complete in the context of that examination.

I just want the treatment to be the same for exhibits.

THE COURT: Well, all right, Ms. Hancock, I hear you. But there is a massive difference between an e-mail between other parties that goes out and whether that's authenticated or not, and something that a lawyer says, "I put together these numbers to have a reasonable reference to consider things."

The -- an e-mail, there's nobody that -- there was nobody here to say this actually went out, was actually received, or whatever else like that. There's no question about what the other document is. And I'm sure that's authenticated in the right sense. I think it's appropriate to have it in the record, and I think we'll stay consistent.

If there's a third-party document, somebody else signs something, that is something that -- that needs

authentication.

And, you know, I would, I guess forewarn folks cross-examining that they need to, you know, authenticate what's in these documents.

And I think this -- I think Mr. English and others have talked to this. I don't think there's going to be a problem about an exhibit -- one, there's going to be a problem, but we're going to have somebody go jump through all the hoops on that.

Mr. Miltner -- Mr. Hill.

MR. HILL: I am sorry I brought us down this rabbit hole. So I do want to say that Dr. Stephenson does have a limitation on his time, so whatever the case may be, I would like to move forward with him to get him out of here as quickly as possible.

THE COURT: That's fair.

Real quick, Mr. Miltner.

MR. MILTNER: Very quickly. I want to say that I agree with much of what Ms. Hancock is saying. The fact that I have a witness coming that was the recipient of the e-mail and he can deal with this authentication issue is why I said we'll deal with it later. Had that not been the case, I think there was enough here with the practice of this hearing and the way we have admitted evidence, as Mr. English noted, that we tend to admit exhibits unless there's a very, very valid reason for excluding it, such as confidentiality or real questions about its providence, and then we allow the Department to ascribe the weight to

which the Secretary believes it's entitled.

And I think that under that standard, we certainly could admit the e-mail now, but I don't want to belabor this. We will have someone to authenticate it. But I also wanted to make sure that I did get on record that I do believe it is admissible at this point. So, thank you.

THE COURT: Very good. And everyone's objections are preserved.

Let's -- for Dr. Stephenson's purpose, let's go ahead. I do think the discussion was useful as guidance to the questioning that other people may do.

And moreover, I suspect that you were right to begin with, Ms. Hancock, that Mr. Rosenbaum probably got in everything through back-and-forth questions and answers that was in that document, so I don't think there's harm or foul either way on that. And I do think it --

This is a bad question to ask on the record, but I will right now. I mean, I'm not sure what happens to documents that are excluded. Do they go with the record to the --

MR. ENGLISH: That's my understanding, your Honor. They've always gone -- they're definitely the documents excluded, they are just not admitted, but they go along anyway.

THE COURT: It may be an automatic offer of proof anyway. I forget what the rules provide.

MR. HILL: Yeah, they get posted just like all the other exhibits.

THE COURT: Anyway, thank you, everyone. It helps me refine my thinking, and glad to have everyone's thoughts.

MR. ENGLISH: Your Honor, may I?

THE COURT: Yes, sir, your witness.

MR. ENGLISH: Chip English for the Milk Innovation Group.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Dr. Stephenson, good morning. I actually was going to end with a question about Exhibit 179, but maybe to close the door, I'll start with it.

The exhibit in the last paragraph references a submitting data for the survey deadline of, in bold, April 14th, 2023.

A. Which document are you --

Q. This is Exhibit 179. This is the document we just spent 20-some minutes talking about, which is, you know, the e-mail purportedly from Mr. Allen back to Dr. Dykes. And there's a reference to the deadline for submitting data for the survey being April 14th, 2023, right? So orient ourselves.

Did that deadline end up being a hard deadline?

A. No. I moved the goal posts a few times because people requested that, could we please enter data within the next two weeks, and that happened a few different times.

Q. So going back quickly to a question asked by

Mr. Miltner. If you were asked about confidentiality for the 2023 study, you supplied, entities that requested, a non-disclosure agreement, correct?

A. Correct.

Q. Given the public nature of IDFA's request to you to update the 2019 study, or 2021 published, do you have any view as to whether people in the industry knew about your study and any facility could have participated if they wanted to?

A. I believe that most of the participants knew that the study was being updated -- or most of the previous participants knew that it was being updated, and would have been welcome to participate.

Q. What about other people who did not participate in the earlier study, would they likely have known based upon the invitation and the dairy industry's predilection to share information?

A. There certainly would have been opportunities for them to have understood and heard about that and participated. I don't know how broadly it was. I don't recall whether this was something that was picked up by popular press or not, as has happened certainly in the past.

Q. So at the time IDFA sent out this invitation in February, mid-February of this year, to your knowledge, was DFA a member of IDFA at that time?

A. I don't recall. I do remember hearing that they had pulled out from their support of the organization, but

I don't remember what the exact date and timeline was.

Q. But do you know for a fact that DFA did know about the study? Did you discuss it with them at all?

A. I had some discussion with people about the study. But, again, I don't recall if this was before or after this e-mail.

Q. So going to the survey and your report as to cheese, the plants that participated had relatively higher volumes.

What is the implication for smaller volume plants' ability to influence the study's results?

A. Well, their data would be included like any other plant's data in the study. I will say that as I'm reporting weighted average values on here, a plant that produces smaller volumes will have a smaller impact on the results than a larger volume plant would. That's just the math.

MR. ENGLISH: That's all I have. Thank you.

THE COURT: Further questions for Dr. Stephenson?

AMS.

CROSS-EXAMINATION

BY MS. TAYLOR

Q. Good morning.

A. Good morning, Ms. Taylor.

Q. Kind of hard to believe there's even still questions left to ask.

A. Hopefully there are still answers available.

Q. I hope so, too.

I want to start -- I'm going to try to do this in some semblance of a logical order. So let's start with Exhibit 158, which is your December 2021 study.

A. Okay.

Q. I'm going to ask some questions that might be a little repetitive, but I think for clarity of the record would be helpful.

On page 4 when you talk about your products targeted, you list cheddar cheese in 40-pound blocks, 640-pound blocks, and 500-pound barrels.

And if I remember from your discussions with Mr. Miltner, costs for all those products were included, except for packaging costs for 640s?

A. That is correct.

Q. Okay. And you also --

A. And I didn't report packaging costs for barrels in here. I have those, but they are not reported in the table.

Q. Okay. So -- okay. Thank you for that clarification.

And then on the whey, you have costs in here for dry whey and WPCs, which you did collect, but the results only reflect dry whey plants.

A. Could you restate that? I didn't quite clearly hear it.

Q. Sure. For the whey category, you have in here you collected information -- or you targeted cost data on dry whey products and WPC products.

A. That's correct.
Q. But the results are only for dry whey showing --
A. That's the only thing that's reported.
Q. Okay. And that same characterization of the products and which costs are reported applies to both the '21 study and the 2023 study?
A. That's correct.
Q. Okay. On the top, in page 7, and you discuss your transformation factors, which I know long before this hearing was ever thought about we had some discussions of those with you when you were working on this survey.

But one question is, you -- well, first, you only used this transformation value on plants that could not directly allocate their costs; is that correct?
A. Yes. If we had plants that were able to directly allocate their costs, then those are the first things that I take.

If they can indirectly allocate their costs, so, for example, they have allocated the cost to cheese products, in large quotes here, that might have included cheddar cheese and other non-reportable NDS- --
Q. NDPSR?
A. That's it.

-- then I would have performed an allocation between cheese products, but it would have been restricted to cheese products even if other products were produced in the plant. So transformation values only occur when I'm trying to allocate costs.

Q. Can you talk about, if you can recollect, how often you actually had to employ this transformation value?

A. With some frequency. I mean, some plants will report occasionally, just kind of like a bottom line unallocated number for things, and at that point in time, the allocation has to take place across it.

Most plants will have some degree of allocation that they have actually done, but not complete. And I don't really expect that to happen. There are always going to be some costs that I need to allocate.

Q. Okay. And so would it be fair to say, maybe, like, general and administrative costs might -- you might use it that way, which were less, maybe have a -- there's less ability to allocate between products?

A. I do have -- if you remember in that last input screen of the general ledger, that there are at least product categories, such as cheese or powders or butter, where you can provide some degree of disaggregation of your costs. I would say the majority of plants don't. They will simply provide me unallocated costs on that ledger page, but there are more than a few plants, probably 40% or something like that, a rough estimate on my part, that make some degree of allocation across their product categories.

Q. Thank you.

I want to turn to the results which start on page 11, and this is for nonfat dry milk. And what I took

from your conversation earlier to -- well, first let me ask this. You discussed how the 2023 results were more bimodal distribution and less of a normal distribution on the bell curve; is that correct?

A. Correct. And I had some of that same evidence for the 2021 study.

Q. Okay.

A. And that comment was primarily made going back to the earlier 2006 and '07 studies.

Q. Okay. So you saw the similarities between '21 and '23?

A. Similarity, but differences.

Q. Okay. And so for your low cost and your high cost divisions, if I'm looking at an N of 27, am I going to always assume that the division is around 50%, or could it be that -- oh, I guess that's my first question.

A. Yeah. I mean, I wouldn't have had 20 and 7, for example, in a division here. It would have been 13 and 14. But where that additional plant falls, you know, between the low cost or high cost, I would look to see whether their price value has a natural break that is more closely aligned with low cost plants or high cost plants.

Q. So you didn't observe where, because of the way it's distributed here, that you had an uneven break? Like, say, 15 happened to be around one end, and 12 around the other end, and so the natural break was between 15 and 12 instead of between 15 and 14, if that adds up right?

A. No. When I start to do something like that, there

are some statistical measures that might have been used to look for natural breaks. But I didn't do that because that, to me, began to feel a little bit more like I was trying to impose my idea of what should be reported as data or difficult to explain to others. So I tried to break always at near the 50% --

Q. Okay. Thank you.

A. -- in terms of number of plants.

Q. Okay. And then so if we're looking at the low cost product pounds, that is the weighted average of the number of plants that fall in that low cost category.

A. Correct.

Q. And then the same thing for the high cost. And then the all plant product pounds is the weighted average of all the plants together, or is that the average of the two numbers?

A. Yeah, it's actually not the weighted average, it's the average. Because it's all of the other values that are weighted by those product pounds that are weighted average values.

Q. Okay. And I wanted to turn to page 14 of this exhibit for dry whey. Under the high cost plants -- and I don't know if this is a typo -- it has a general and administrative cost of zero, but you still have an average of .0015, so I'm just wondering what the missing number is.

A. Yeah. This was a case where, you know, sample, again, imposed itself, and there were not very many

plants, there were four operations that would have been in that high cost. And this was a case, I do recall, where actually if I carried that out to five or six decimal points, there would have been a value there. But we had many plants for the general and administrative numbers where those were not supplied or broken out.

Recall, those are not all of those general ledger numbers, they are specific data values from that ledger page and from the labor page.

Q. Okay.

A. An example for that would have been clerical values, it would have been the plant superintendent values, and we may have had plants here that did not report separate superintendent or plant manager values.

Q. So there are instances in the data where they could have reported labor, utilities, other -- some of the cost breakouts, but not all?

A. Yes.

Q. And if you did that, if they did that, they left some cost categories blank, you didn't remove them from the survey altogether?

A. No. I didn't remove them altogether. And there are a few plants that don't report some of those values on there that where -- let me give you a good example of that.

On the return to investment category that's here, if we had one plant out of the four that might have fallen into one of these categories, it simply said, I can't come

up with a market value of my plant assets. And that did happen. Then, when I'm calculating this as a weighted return value, that's not a zero value for those assets, it's a non-number value, so it's excluded. It would be weighted by the three observations that we have there.

Q. Okay. So then same thing for general administrative --

A. Yes.

Q. -- it's just not in the -- it's not in the equation at all?

A. Exactly.

Q. Yeah. Okay.

For the plants for both '21 and '23 studies, I think in your description you talk about how they represent kind of, like, geogra- -- their -- word this in a way that makes sense -- they are representative of the geography of the entire United States, so they are all over?

A. We had plants that were all over. I wasn't targeting that like I have done in previous studies, but we had representation from all parts of the country. Southeast is a place where we didn't have any observations.

Q. Okay. Excluding the Southeast part of the country, were there any other parts of the country that might have been overrepresented or underrepresented in the --

A. No. Actually, not. We had plants from all

portions of the country. And I'll -- I guess you could define regions into smaller and smaller geographies, but for what I would consider major regions like Northeast, Middle Atlantic, Upper Midwest, far West, Southwest, we had representative plants in all of those areas.

Q. Okay. I have questions on like four different documents, so --

A. Okay.

Q. -- I'm trying not to go all over the place.

So for the data that you collected, I think most of it was for -- occurred in 2022; is that correct? They didn't have to do calendar year, they could have done fiscal year, but --

A. They could have. I don't recall specifically. It was only either one or maybe two plants that did something different than calendar year 2022 data.

Q. Okay.

A. And those fiscal years tended to be pretty close to calendar year '22.

Q. Okay. I just want to make sure that the record is clear because -- let's turn to -- let me -- I'm on your statement, which is Exhibit 176, on page 5.

A. Okay.

Q. And you have in the table the 2008 Make Allowances, which are current levels, then your results of the three surveys that you have done, and the percentage changes are of '19 or '22, changed from 2006.

But I want to make sure it's clear that none of

your survey results included any type of marketing costs factor; is that correct?

A. No. There's no questions that are asked that would comprise what I might consider marketing or sales costs to be, and I do actually try to explicitly make sure that those aren't included.

Q. And do you know if there's a marketing cost factor included in the 2008 Make Allowance numbers that are currently adopted?

A. The 2008 numbers? I -- I don't know, as I have testified before, what had actually gone into the discussion about what -- what final numbers came out for Make Allowances.

I can tell you that the data that I had used back in that time period and reported on 2007, I guess, did not include marketing costs.

Q. Okay. So I'll ask a question of my lovely technical people next to me. I did one set of math and it worked, and then the other set apparently doesn't work.

The way they are looking at the -- the percentage change you have listed between '06 and 2019, that column, I think the way they have calculated it, it looks like you actually did the percentage change over the current Make Allowance, which is the first column.

But you did intend for it to be a change from the 2006 if we wanted to redo that math?

A. That was my intention was to compare it to my results, not the Make Allowance results.

Q. Okay. Thank you.
A. So if I did the wrong thing, apologies.
Q. We're just here to make sure we are all clear on what we wanted to do.
Let's see. On the next page, for observations, where you kind of give a general summary of what you saw, and I want to summarize and make sure I have got this right.
So for nonfat dry milk between 2019 and 2022, you had less plants reporting, but they were bigger plants that did report?
A. Correct.
Q. And -- and would you say -- as I'm looking at the numbers between your '21 study and your '23 study, they actually declined a little bit. In '21 you reported $0.2933 cents, and in 2023 you've reported $0.2750.
So would you attribute that just to the larger volume?
A. As I have mentioned a few times, we oftentimes see lower costs in larger plants. But that's not an absolute categorization, that sometimes small plants are very cost competitive.
Q. Okay. I wanted to talk about the butter results. And I know you discussed this some, and I think I might -- and I think I'm being duplicative, I apologize, because I missed half your answer when you were discussing it earlier.
But for the butter, you had generally the same

number of plants reporting, and it averages out to a similar volume, but you think the difference is just a -- it was just basically a different set of plants that reported, a significantly different set of plants?

A. Yes, they were -- I mean, not a perfectly different set, there were some same plants. But they were -- in that -- in the two samples, really very different plants that were reporting this time around. So the volume was similar, the number of plants was similar, the results not similar.

Q. Okay. On your dry whey survey, between the two, I think you had a similar number of plants, but the volumes reported were increasing, suggesting larger plants.

But if you look at the numbers between the surveys -- so that's kind of similar to -- well, the volume piece is similar to the nonfat dry milk, but we saw costs increase from '21 to '23. Just wondering if you had an idea of why we saw the increases there.

A. I am not exactly sure. I can characterize some of those as being what we would think of as just the operating costs in a plant, that labor had certainly gone up, and that would have been true across all these plants, not just whey. But we also had different plant sets here, so they weren't the same whey plants, much like I reported in others, and why I made kind of a point of saying the sample matters.

Q. Okay. I'll turn to your Exhibit 178, your 2023 study. I don't know if you had heard earlier witnesses --

I think it was this week, I can't remember -- they talked a lot about how insurance costs increased, and I just want to be clear on where those costs might show up in the reported costs.

Would those be under general administrative costs?

A. Yes.

Q. On page 10 of this exhibit, 10 of 30, under observations, and for each of these you go through, each paragraph discusses a different commodity, and you talk about the non-transformed weighted average values for the '21 and -- for the 2021 study.

So I take it you went back to the 2021 study and did the allocation the old way on a solids basis; is that correct?

A. I did. And I was curious about taking a look at just seeing while impactful that that may have been, in most cases not as much as you might expect but -- or hope for perhaps. In other words, it didn't explain the low cost of butter processing.

Q. Yeah. So --

A. It wasn't that butter was undervalued and nonfat overvalued. It -- I mean, to some extent that would have been true. But this was more of a sample problem than it was a weighting problem.

Q. Okay. I appreciate that. I was going to ask about it. I wrote down what the numbers were using the first transformation number, and then what the numbers are using the old way on the solids basis, and actually, all

of those costs declined.

A. Yeah. Again, sample.

Q. Okay. Okay. If we could turn to page 13.

So we took a look at the pounds reported in your study here, multiplied it by the N of the relevant commodity, to come up with a total pounds surveyed, and then compared that to our NDPSR volumes.

And for butter especially, that number was considerably higher than what we actually capture in NDPSR, like eightfold. I'm just wondering if you might know why that is? Are you capturing unsalted butter, perhaps? Or it's bulk butter that isn't reportable to NDPSR because eventually it goes into retail packaging? Just kind of curious why there's such a large difference there.

A. Yes. There are some of both things that you just mentioned. There's some unsalted butter in here, and that would have been a cost that was not included in the ingredients cost, pretty small cost in the overall scheme of things. But there were certainly many of these plants that also produced consumer packages. Those aren't included in here.

But up through the churn, processing costs are pretty similar for the products that are going into consumer packages. It's just additional labor in the packaging room and other things that would not have been included here.

Q. So labor is not included either?

A. No. If we can sort -- if we can sort that out, you know, then there is -- in the screenshots you can see that there are -- well, I don't know if I have butter on here or not. I think so, though. Yeah. Well, there's butter processing, and then there's butter packaging -- and I may have to own that one, too, that there's a possibility that there could have been some of the labor that would have been involved in butter packaging for consumer products, that that could have gotten in there. The packaging costs themselves would not have gotten in there, but bulk packaging and consumer packaging labor may have been commingled.

Q. And that would be the same in the 2021 --

A. It would be the same in both.

Q. Yes, you could say the same in 2021?

A. Yes, both.

MS. TAYLOR: I think Mr. Wilson has a few questions.

CROSS-EXAMINATION

BY MR. WILSON:

Q. Todd Wilson, USDA. Hello, Dr. Stephenson.

The -- just so that I can kind of get my head how you break the low versus high. So you're doing that on total dollar cost as a midpoint median?

A. Yes. So when we look at the total cost for individual plants, all the plant observations are ranked from low to high. And, again, if there's an even number of plants in there, then it would be the 50% low, 50%

high. If it's an odd number of plants, then that one plant is going to be assigned to one or the other.

Q. And it would be all costs that you have listed in this -- in these tables?

A. The break is made based on total costs. I mean, that's the calculation and ranking that I do. The rest of these carry from those individual plants.

Q. So the breaking would incorporate costs that are not necessarily in these weighted numbers because of consumer type packaging labor or whatever?

A. If the laboring -- labor costs got commingled in here, then it would be included for all of those plants. But, no, I -- I don't include --

Q. Okay. It's not the total -- excuse me -- it's not the total plant cost, it's the costs that are associated with --

A. With the product of interest, the one that's reported here. That's correct.

Q. Okay. Thank you. I just wanted to try to be clear.

In reference to the 15 plants that are overlapped. Okay? Some of those were in different -- in all products. Okay? Were there -- were there times, did you notice, were there times when plants might flip from a high to a low between '21 and '23, or do you know?

A. I didn't look for that, so I -- I can't really comment at all about it, I guess. I could look back in data when I'm at home and see whether that was the case,

but I can't really comment here.

Q. Okay. I'm going to switch over -- or switch back to whey, page 15.

I was just comparing some values across all products, and I thought this of interest, and I wanted maybe your opinion of why it might be.

So when we look at general and administrative on the '21 study, it was the lowest of all the products, butter, powder, cheese, whey. But in '23, it was the highest. Just interesting that G&A would be that divergent between those two population groups.

A. We did have, as I said, different plants in the two samples. And for the G&A in particular, there were a few plants in the whey category where we had non-reporting, like, of superintendent salary values and, you know, a couple of things of that nature, which gave a very low G&A in the earlier study.

In this one, different plants reported differently. So, again, when I come down to saying that having the authority to compel participation and to audit data like that, that I think these would be numbers that you would want to assure were included.

MR. WILSON: Thank you.

MS. TAYLOR: I think I'm more organized now.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. We have heard throughout this hearing about different investments, capital investments that plants

have made. And I'm wondering if you could elaborate or inform us on how that might -- how that's accounted for in these numbers. We have heard about investments in things like implementing UF at the start of a production process, and we have also heard about capital investments such as wastewater treatment investments.

So are those accounted for in these numbers, or are some accounted for and not others accounted for?

A. Well, to the extent that it impacts the production process and are costs that would be asked for and, thus, captured in here, they are accounted for. So just as a good example, water and waste treatment is a line item in that ledger category that's there. So the attempt is certainly made to capture some of those kinds of things.

UF in a plant or RO in a plant in front of the vats would be capital equipment that would be purchased, and at some point in time depreciated, and otherwise noted in there. Hopefully, it's providing greater throughput for plants, and so, you know, we -- we may see -- I would assume that the investment was made to lower total overall costs in the plant, and that those would be reflected in the total numbers.

Q. Okay. And then I want to use an example of a plant that has a cheese and a whey side. And say on their whey side they did 20% dry whey, which would be reportable, and 80% some type of value-added whey.

Are you -- are we at all perhaps capturing some of that cost to the value-added side in here, or you were

able to desegregate those?

A. To the fullest extent possible, we try to disaggregate them. And, again, that's going to be based on the pounds of solids in those two finished products. And we are not going to get a complete allocation, I guess, for that, because some of this is going through a very similar stream in here. But we would have less of some of the pounds of product in the value-added process than we would have in the dry whey product, and the allocation would be a bit different.

Q. Okay.

A. But, again, up to the point that we are actually capturing the whey from the cheese making process, then that's the place where the differences begin to express themselves.

Q. So another difference I wanted to clear up for the record is in your '06 survey you had a category of repairs -- repairs and depreciation in ingredients. You don't have that same category heading in your 2021 or '23 surveys.

So would that all fall under what is now called nonlabor and utilities processing if we wanted to compare?

A. Yes. I think that CDFA towards end of their time period, and maybe you will have the opportunity to look at those more closely, changed the way that they reported things. So I had looked to see what they were including in their different titles. I'm not sure why they changed that, but they had done it. And as I mentioned earlier in

testimony, I had tried in the past to report the same way CDFA did so people could have a -- look at an audited set of data for at least a subset of plants, and then what was done here in a more national level.

Q. Okay. So you have answered some other questions from other parties about costs and whether 2022 -- I'm generalizing here -- was a good year to use for cost data because of supply chain disruptions and inflation, etcetera. And I know you answered that question. All costs go up or down, and I understand that.

But as you were looking through the data, did -- the monthly data that was given to you -- did you see that those costs were moderating at all at the end of the year?

A. I didn't -- I don't recall noticing anything that really jumped out at me. And there are only a few places where I'm actually capturing monthly costs, that's true in utilities, and I don't recall that, you know, I noticed the utilities changed very much over the course of a year for any particular plant or buyer.

Q. Okay. So I have one more question, and I'll see if you take the opportunity to answer it or not.

A. All right.

Q. Since we have this opportunity to talk to you, and you certainly are an expert in this cost data that you have been collecting for years, and we have to go back at USDA and take this lovely record and help the Secretary determine what he finds is appropriate based on the record.

And I was wondering if you had any offerings, based on your experience, how we could use the cost data to make a decision on minimum-regulated prices, given that we're kind of working off of averages of various surveys that you have done. So I didn't know if you wanted to take this opportunity to offer your thoughts on that or not.

A. I have tried to provide data and information for folks to use in making determinations of exactly what you are talking about, and it seems to me that it edges into policy decisions.

If you were to ask me what would you do, I'm not sure that I feel like I should be making those kinds of decisions for you. This is an industry where you need to put on the blindfold and hold up the scales of justice and come out with something that is going to be good for the industry.

Q. So you are deferring on that advice is what I'm gathering.

A. I could have shortened it, and said, yeah, no comment.

Q. So noted.

MS. TAYLOR: I think that's it from AMS. Thank you.

THE WITNESS: Okay.

THE COURT: Mr. Rosenbaum?

REDIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Just a couple points of clarification.

In your testimony, which is Hearing Exhibit 176, you have a Table 1 on page 5 of 7, which AMS asked some questions about. And -- and I think AMS, in doing their calculations, suggested that the column that says '06/'19 percentage change, actually is a comparison between the 2008 Make Allowances and the 2019 results.

Do you remember that colloquy you had?

A. I do.

Q. And I think your testimony was, if that's the case, that was not your intent. You had intended the calculation to be a comparison between the 2006 results and the 2019 results, correct?

A. Yes. That was what my intention was. I should probably check that and see if I had actually done it or not.

Q. I'm going to -- let me say, I'm going to suggest to you that the numbers in the June 2022 percentage change is, in fact, what I believe you intended, namely a comparison between the 2006 results and the 2022 results. In other words, I think you did that column the way you intended.

A. Okay.

Q. But maybe you could just double-check both those things just so we're sure that the record is clean on this.

We have doubled-checked the 2022 numbers and --

(Court Reporter clarification.)

BY MR. ROSENBAUM:

Q. We double-checked the June '22 numbers and the percentages, as we calculated them last night, were, in fact, a comparison of the 2006 results and the -- and the 2022 results.

A. I just grabbed the wrong column, mentally --

Yeah. I -- the percent change on the '06 to '19 is actually a comparison with the Make Allowance column.

Q. Okay. And to come up with the correct number for cheese, for example, that should be in place of the 24%, the math is simply -- correct me if I'm wrong -- the correct math would be $0.247 minus $0.158 divided by $0.158?

A. Yes.

Q. And so -- and similarly for whey, it should be $0.265 minus $0.197 divided by $0.197?

A. Yes.

Q. And just to complete it, butter should be $0.141 minus -- well, minus $0.18 divided by $0.18, right?

A. Yes.

Q. And nonfat dry milk, to close it off, would be $0.293 minus $0.166 divided by $0.166, correct?

A. Yes.

Q. And the numbers in two thousand -- in the column 2019, those reflect your use of the transformational adjustments; is that correct?

A. Yes.

Q. Okay. Which I think you said affect butter and

nonfat dry milk in opposite directions. Am I right about that? The employment of transformational techniques.

A. Yes. I also indicated that the bigger difference in these numbers had more to do with sample than it did the weighting.

Q. All right. And have you been able to confirm for me that the numbers in the column -- the percentage numbers in the column June 2022 do reflect what you intended, namely the 2022 results minus the 2006 results divided by the 2006 results?

A. Yes. They do.

Q. And one thing that just leaps out at me is it's actually a rather consistent number in terms of what the percentage increase was from 2006 to 2022, among the four different components on a percentage basis, correct?

A. It is. And I was a little surprised, I guess, that it was that close, but I -- that gives me some degree of comfort that maybe those samples were, you know, reasonable in those two years as well.

Q. I mean, presumably the labor costs, electrical costs, general inflation, would be factors faced, more or less, equally regardless of what kind of commodity you are making. Is that reasonable?

A. Yes. But there are a lot of things that I know -- when you start to look at the individual plant data, one of them is just how different things like utility rates can be from one plant to the next. And I don't mean by a small amount. I mean, they are substantially different.

So clearly folks are able to secure different costs just based on that. And over time, it's not really fair necessarily to say these should all track, too, because we have had investments that provide some energy recapture in the plants, and not all plants have invested in that to the same degree, so I mean factor usage is a little different.

Q. Let me just ask a question relating to AMS's questions about poundage. And if we could turn to page 13 of 30 just as an example, which I think was the one that AMS was asking about.

A. On which exhibit?

Q. It is on Exhibit 178. I'm sorry. I'm turning now to your June 2023 report.

A. Page 13?

Q. 13, yes.

And so you show the -- there's a row that says N equals, and in this case it's 13. That's how many plants reported costs for butter, correct?

A. That's correct.

Q. And every one of the commodities has an N on the sheet that relates to it that provides how many plants participated, correct?

A. Correct.

Q. And so if you multiply 13 times, in this case, butter, 126,906,009 product pounds, does multiplying 13 against that number tell you the total poundage that was covered by the plants covered in the survey?

A. Correct.
Q. And if you wanted to determine what percentage of total butter production in the United States that represents, would you divide whatever number results from multiplying 13 times 126,906,009, would you take that number, divide it by the NASS survey of total butter production in the United States for that year?
A. That would give you a percentage of reported butter to NASS, yes.
Q. Okay. And would -- and reported to NASS should be butter production in the United States, correct? I mean, that's what that is a survey of it?
A. I'm not aware of them not tracking some plants or reporting some plants for reasons. But, yeah, I would think the U.S. total should be pretty much the total.
Q. So the 13 times 126,906,009 divided by the NASS number would tell you what percentage of butter you are survey picks up, correct?
A. Yes.
Q. And if that number is -- do the math, we'll have someone do the math, testify to it -- 85% or some other number similarly, you really not -- your sample at that point is --
A. It is pretty good.
Q. -- it is like very good, isn't it?
A. Yeah. It's nearly a census. I mean, there would be probably many plants that didn't participate in this that are going to be very small operations or quite small

operations in comparison to these large plants that participated this time around. Yeah. So there may be a fair number of those small plants, but they didn't comprise much volume.

MR. ROSENBAUM: That's all I have. Thank you.

MS. TAYLOR: I'd like to ask another question if we may.

THE COURT: No objection?

MS. TAYLOR: Sorry.

RECROSS-EXAMINATION

BY MS. TAYLOR:

Q. We only get this one opportunity to make sure we understand all these numbers, Dr. Stephenson, so -- I'll just keep to the same page because I assume it's the same. And I just want to make sure -- I thought we were clear, but then we confused ourselves.

So the low class product pounds is the weighted average of all the plants that fall in that category?

A. It's the average of all the plants in that category.

Q. Yes. Okay.

And then the factors break -- cost breakouts in that category are the weighted average?

A. Yes.

Q. Okay. Same for the high cost plants?

A. Yes.

Q. And so for all plants, is that a simple average or is that a weighted average of 126 million?

A. It's a weighted av- -- well, that is a simple average as well, I mean, for the total pounds of product.
Q. Okay. Of the 13 plants?
A. Yes.
Q. Yeah. Okay.
And then the cost factors on that line?
A. Those are also weighted average cost values.
Q. Of all 13 plants?
A. Yes.
Q. Okay.
A. Was there a question?
Q. No, we just looked at your face and thought maybe you were thinking about your answer again.
A. No, no, no. I -- no. No, I -- I stand by my answer. Yes.

RECROSS-EXAMINATION

BY MR. WILSON:
Q. Could I ask a question maybe to clarify it in my head.
The all plants row --
A. Yes.
Q. -- is the sum of all the costs divided by all the pounds? Not the average of the pounds, but all the pounds?
A. This is the weighted average total costs. So, for example, if you added up those weighted averages across each of the categories, you should get the total cost. If you added up all of the total costs of individual plants

and divided by the total pounds, you should get the same number. So, I mean, it's two different ways of getting to that bottom right-hand corner.

MR. WILSON: Okay. Thank you.

THE WITNESS: You're welcome.

RECROSS-EXAMINATION

BY MS. TAYLOR:

Q. But for the example, because we were talking about it, the general and administrative costs, if the plant did not report those numbers --

A. Right.

Q. -- then that number in the all plants line is only for the pounds that were reported -- pounds where costs were reported?

A. For that category, that's correct.

Q. For that category?

A. Yes.

Q. Okay.

A. So in other words, it would provide an accurate representation of maybe 12 out of the 13 plants or something to that effect, but it wouldn't be distorted by being a zero value.

Q. Okay. We think we understand now.

A. Thank you.

MS. TAYLOR: Thank you.

THE COURT: Mr. Rosenbaum?

MR. ROSENBAUM: Your Honor, at this point I simply would like to move Exhibits 176, 177, and 178 into

evidence.

THE COURT: That's redirect, huh? Okay.

Any objections?

Exhibits 176, 177, 178 are made a part of the evidentiary record in this hearing.

(Thereafter, Exhibit Numbers 176, 177, and 178 were received into evidence.)

THE COURT: With that, should be break for lunch?

MR. ROSENBAUM: Yes, your Honor.

Let me just say, our next witness after lunch is going to be Dr. Schiek, and we are actually introducing a number of documents into the record through him. And I will put at the back, I'm going to put boxes -- not for USDA, they get their own set -- but for anyone else who wants a copy, just please take one each. It's going to be IDFA Exhibits 2, 7 through 21, and 40. So you should have one of each of those.

THE COURT: Can you gather up copies for me?

MR. ROSENBAUM: Yes, of course, your Honor.

THE COURT: Is there any controversy about that?

Ms. Hancock, you rose.

MS. HANCOCK: No, I'm just going to lunch.

THE COURT: All right. Let's go to lunch. Come back at 1:05.

(Whereupon, a luncheon break was taken.)

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WEDNESDAY, SEPTEMBER 13, 2023 - - AFTERNOON SESSION

THE COURT: Another witness, Mr. Rosenbaum.

MR. ROSENBAUM: Your Honor, we call as the next witness, Dr. William Schiek.

DR. WILLIAM SCHIEK

Being first duly sworn, was examined and testified as follows:

THE COURT: Your witness.

DIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Dr. Schiek, you have prepared written testimony today which has been marked IDFA Exhibit 2; is that correct?

A. Correct.

MR. ROSENBAUM: Your Honor, I would ask that this be given the next Hearing Exhibit number.

THE COURT: Yes. 180.

(Thereafter, Exhibit Number 180 was marked for identification.)

MR. ROSENBAUM: And then, your Honor, we have a series of reports by the California Department of Food and Agriculture, which we would like to have marked seriatim.

And so the next one is IDFA Exhibit 7, which we would ask to be marked as Exhibit 181.

THE COURT: Yes. IDFA Exhibit 7 is marked for identification as 181.

(Thereafter, Exhibit Number 181 was marked for identification.)

MR. ROSENBAUM: And then IDFA Exhibit 8 would be 182, Hearing Exhibit 182.

THE COURT: And that is an 8 on there. Yes. 182 is so marked.

(Thereafter, Exhibit Number 182 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 8 -- 9, excuse me, would be Hearing Exhibit 183.

THE COURT: Yes, so marked.

(Thereafter, Exhibit Number 183 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 10 is Hearing Exhibit 184.

THE COURT: Yes. So marked.

(Thereafter, Exhibit Number 184 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 11 is Exhibit 185.

THE COURT: So marked.

(Thereafter, Exhibit Number 185 was marked for identification.)

MR. ROSENBAUM: IDFA-12 is Hearing Exhibit 186.

THE COURT: So marked.

(Thereafter, Exhibit Number 186 was marked for identification.)

MR. ROSENBAUM: IDFA-13 is Hearing Exhibit 187.

THE COURT: So marked.

(Thereafter, Exhibit Number 187 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 14 is Hearing Exhibit 188.

THE COURT: So marked.

(Thereafter, Exhibit Number 188 was marked for identification.)

MR. ROSENBAUM: Hearing Exhibit 15 is -- sorry, IDFA Exhibit 15 would be Hearing Exhibit 189.

THE COURT: So marked.

(Thereafter, Exhibit Number 189 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 16 will be Hearing Exhibit 190.

THE COURT: So marked.

(Thereafter, Exhibit Number 190 was marked for identification.)

MR. ROSENBAUM: Exhibit 17 will be Hearing Exhibit 191.

THE COURT: So marked.

(Thereafter, Exhibit Number 191 was marked for identification.)

MR. ROSENBAUM: Hearing Exhibit 18 will be hearing Exhibit 192.

THE COURT: So marked.

(Thereafter, Exhibit Number 192 was marked for identification.)

MR. ROSENBAUM: IDFA Exhibit 19 will be Hearing Exhibit 193.

THE COURT: So marked.

(Thereafter, Exhibit Number 193 was marked for identification.)

MR. ROSENBAUM: And then IDFA Exhibit 20 would be marked Exhibit 194.

THE COURT: Oops -- so marked.

(Thereafter, Exhibit Number 194 was marked for identification.)

MR. ROSENBAUM: And although I distributed IDFA Exhibit 21, it turns out that actually is already in evidence as Hearing Exhibit 156, so I'm not asking that that be marked as a new exhibit. It's Hearing Exhibit 156. That actually was put in by National Milk, so it actually is NMPF-18A, but it's already in evidence so I'm not going to ask that be given a separate number.

THE COURT: Very good, sir.

MR. ROSENBAUM: And then, lastly, Dr. Schiek is about to go through a PowerPoint presentation, which has been marked as IDFA Exhibit 40, and so we would ask that that be marked as Hearing Exhibit 195.

THE COURT: So marked.

(Thereafter, Exhibit Number 195 was marked for identification.)

BY MR. ROSENBAUM:

Q. Dr. Schiek, why don't we go ahead and put up your PowerPoint presentation that you have put together, and start by telling us a little bit about yourself. You don't need to read this, but just tell us what your background is.

A. Yeah. Well, I'm currently executive director of the Dairy Institute of California. Dairy Institute is a dairy processor trade association similar to IDFA. We engage in regulatory and legislative advocacy on behalf of our members. Our core members are folks who have plants in California, dairy plants in California, and buy milk in California.

Q. And how long have you worked for the Dairy Institute of California and in what positions?

A. So I have -- I started with Dairy Institute in 1997, and was the economist. And back in those days we had a state regulatory pricing program, and it was my responsibility to help the members coalesce around policy positions that they wanted advanced at those hearings, and I was a principal witness testifying on behalf of the Institute.

Q. Okay. And in those days, California was not part of the Federal Milk Marketing Order system; is that correct?

A. Correct.

Q. And then when did you become executive director of the Dairy Institute?

A. I became executive director on January 2020 following the retirement of my predecessor, who had been there since 1997, and in another capacity before that. And so since that time, I have been responsible for basically all the advocacy efforts of Dairy Institute. This would include legislative advocacy and other

regulatory arenas beside milk pricing and policy.

Q. And taking -- going back in time, what did you do before you started at the Dairy Institute?

A. So prior to joining Dairy Institute, I was an assistant professor in the Department of Agricultural Economics up the road here at Purdue University in West Lafayette, Indiana, and was there from August '91 until May -- through May '97.

Q. And prior to that?

A. Prior to that I was employed -- well, I was in graduate school, so that time at the University of Florida, but I was employed by the New York/New Jersey milk Market Administrator. I started there in June '82, when I had graduated from Cornell with my Bachelor's degree working as a cooperative relations specialist, which was basically a role of administering the cooperative payments provisions that were part of the Federal Order 2, New York/New Jersey Order at that time.

Later I trained my successor in that job, who I don't see in the room anymore, that was Ed Gallagher. And Ed took over that job, and I moved on to be just an economist in the office working on special projects and research projects.

And then he talked about, I think in his testimony, being one of the Wilson Fellows -- and we're not talking about Todd Wilson, we're talking about a different Wilson.

Although, Todd, if you want to give me money to go

to school, that will be good.

You know, I went to graduate school and did research in dairy marketing, and I was funded, in part, by the New York/New Jersey Milk Market Administrator office.

Q. And tell us what degrees you have.

A. So I have a Bachelor's degree in applied economics and business management, with a specialization in business management and marketing from Cornell University. That was in 1982. And then at the University of Florida, I have a Master's of Science and a Ph.D. from the Department of Food and Resource Economics, with a specialty in dairy marketing and policy.

Q. Okay.

MR. ROSENBAUM: Your Honor, I would ask at this point that Dr. Schiek be declared an expert in agricultural economics and food and resource economics.

THE COURT: Yes.

MR. ROSENBAUM: As well as applied economics.

THE COURT: I find him so qualified.

BY MR. ROSENBAUM:

Q. Dr. Schiek, at the time that the State of California had its own milk marketing regime, did the state conduct surveys of manufacturing costs for dairy?

A. Yes, they did.

Q. And were -- was participation in those surveys mandatory?

A. It was for the plants that they selected to be -- participate in the survey. I assume those were plants

that met the product definition that they were interested in studying.

Q. And were the -- were those surveys subject to audit?

A. They were.

Q. Okay. And were they, in fact, audited?

A. They were.

Q. Now, we have marked a series of exhibits which have been numbered as exhibit -- Hearing Exhibits 181 through 194. And then, as I mentioned, they is already a document that has been marked as Hearing Exhibit 156.

Are these official publications of the California Department of Food and Agriculture?

A. They are, yes.

Q. And are these the reports going from the period 2002 through 2016, in which the California Department of Food and Agriculture was reporting the results of the cost surveys they had conducted?

A. They are.

Q. Okay. And -- and did California cease performing these audits after 2016?

A. That's correct. That was the last year they did. Once California joined the Federal Order system, the manufacturing cost unit was disbanded at CDFA, and they were not doing those studies anymore.

Q. Okay. If we could go back to the PowerPoint presentation, and to the next page, please. Tell us -- tell us what it is you have undertaken for purposes of

this hearing.

A. Yeah. Basically, what we have tried to do here is to estimate dairy manufacturing costs from existing CDFA data and other economic data to project what costs would be in the more recent time periods since CDFA ceased publishing this information where they -- you know, we no longer have those audited cost numbers available.

CDFA collected manufacturing cost data from California plants for many years beginning in 1989. A lot of that earlier data was collected in a temporally inconsistent manner. I guess that's a way of saying they didn't do structured annual calendar year audits. They would often cover a period, sometimes as long as two years. Sometimes they -- one report to the next, they would be overlapping.

So in doing this analysis for econometrics, you want sort of discreet data, and so we selected the data for which there was annual reports covering a calendar year, so starting -- that started in 2002. And so that began doing audited reports on an annual basis, on a calendar year basis, beginning in 2002.

Current Federal Order Make Allowances were established, in part, using work from Dr. Stephenson that he did when he was at Cornell on manufacturing costs, as well as CDFA data from 2006. So I just note that there's a precedent for USDA using both survey data from Dr. Stephenson and CDFA cost data.

Q. And, in fact, the Make Allowances that we are

currently living under are, themselves, based at least, in part, on both CDFA data and Dr. Stephenson's then contemporaneous survey, correct?

A. That's correct.

Q. We go to the next slide, please --

A. Yep.

Q. -- the approach.

So I think -- just so we're clear about this, you were trying to take that CDFA audited data that takes us through 2016 and use it to project what you -- what costs would be as of what point in time?

A. Right, as of 2022. Basically we -- we have projections for each calendar year beyond the survey out through 2022.

Q. And tell us what the basic methodology was.

A. Yes. So basically we employed regression analysis using ordinary least squares. Ordinary least squares is a very commonly used type of regression analysis to fit essentially a linear relationship between some independent variables, things that we think will be impacting the dependent variable, which in this case is manufacturing cost. And so we're looking at variables that might -- economic theory would suggest would have an impact on manufacturing costs, and those would be things like energy costs, labor costs, material costs, and we might also look at how productivity changes are also impacting those.

Q. Okay. And tell us how the use of this data captures productivity.

A. So we explicitly included in the -- in the equation for labor cost and the equation for other costs, measures of productivity changes. One was a general productivity change in terms of labor, and the other was a total factor productivity change that captures more than just labor productivity gains for the food, tobacco, and manufacturing -- food and tobacco and beverage manufacturing industries.

Q. And tell us how you dealt specifically with whey manufacturing costs.

A. Yeah. Whey manufacturing costs presented a problem because CDFA did collect some data on dry whey, the cost of dry whey manufacturing. But that data is pretty limited, they collected it for a period of four years. And even that data, when it was collected, was collected from plants that were probably higher cost because of how they were operating. They weren't necessarily running full volumes all the time, and so they had very high costs during that period. And that data ceased when -- when the number of plants producing dry whey dropped below three in the state. So there's not enough of a time series to do a whey model on this with a regression analysis.

So what we did, and this had been used in the past, is you try to come up with a number that represents the incremental drying cost of whey, which is a more dilute solution than skim milk, and so there would be a higher cost of drying whey than there would be, say,

drying nonfat milk powder.

And we just noted here, we don't have -- I didn't go out and estimate those costs of -- incremental costs, but we have a relationship between the current Make Allowance for nonfat dry milk and for dry whey, which is roughly $0.03 a pound. It is a little more but -- so -- so what we did was we looked at the projections of nonfat dry milk, the estimates of nonfat dry milk cost, and the projections going forward, and added $0.03 to that as an estimate of the dry whey cost.

Q. Okay. And let's go to the next slide if we could.

And what -- what are we seeing here?

A. Yeah. This is just a table that lists the weighted average -- CDFA survey weighted average manufacturing cost for each of the commodities from 2002 through 2016. So cheddar cheese is in the -- next to the year, cheddar cheese is in the next column. Then you see the four years for which there was dry whey data. And then weighted average butter manufacturing costs under the CDFA survey in the next column. And then finally, the weighted average cost manufacturing cost for nonfat dry milk.

Q. And are the figures that appear here on page 5, are those taken from the various CDFA reports that we have marked as exhibits?

A. Yes.

Q. And do they provide additional detail as to how many pounds were subject to the survey and things of that

nature?

A. Yeah, there's a lot more detail there.

Q. Okay. Let's go to the next page, please.

And tell us more about the approach you took.

A. Yeah. One of the things, even though we had annual cost data for 2002 through 2016, I wasn't able to locate the report for 2002 that has the extensive breakdown of cost data. Part of the reason is those are no longer up on the web by CDFA, so you -- you have to go back and find them via another source or an archive of the Internet. And so we don't have the breakdown on those costs for 2002. We have labor costs and we have total costs, but we don't have -- we don't have the breakdown of the way I have broken down the costs here in terms of utility cost and -- and other costs.

So we could only get the broken down data from 2003 to 2016. So we estimated -- we looked at CDFA dairy manufacturing costs for utilities and other costs for butter, nonfat dry milk, and cheddar cheese for 2003 to 2016.

For labor costs and to estimate trend models, we actually were able to use the full set, 2002 to 2016, because we had that extra year of data for those -- for those analyses.

One of the things that became clear as we started looking at the various variables that we -- independent variables that we think will be influencing costs, that economic theory suggests will be influencing costs, was

that some of them are highly correlated. And that creates a difficulty in estimation where you have got a lot of variables that -- a few variables that are moving in the same direction and are highly correlated with each other, and it makes it difficult to estimate the parameters associated with those variables that -- how they would impact cost.

So to deal with that we -- we estimated the model separately so you didn't have a lot of the correlated variables in the same model. So we estimated, as I said, utility costs, we estimated labor costs, we estimated all other costs. So that would be everything that -- not total -- everything that makes up total costs that's not either labor or utility costs. So three equations, and you can sum each component -- labor, utility, and other -- to equal total cost.

Q. Okay. And if we can turn to the next page, page 7.

Does this provide some information about, you know, what -- what data you were including?

A. Yes. So in the utility cost equations we were looking primarily at energy -- industrial energy prices. So the data we used was from the U.S. Department of Energy, Energy Information Agency, and these were industrial rates for natural gas and for electricity that were used. And it depended on the commodity which ones we were using.

Q. That was in the state of California?

A. In the state of California. So these are California industrial energy prices.

Q. And then what for labor?

A. For labor we looked at another published series on California wage rates for non-supervisory manufacturing workers. This was data that was collected by the U.S. Department of Labor, Bureau of Labor Statistics. And that is our sort of proxy representation of plant -- plant labor costs.

And we also used Bureau of Labor Statistics data for non-farm labor productivity, which was included to account for the impact of increasing productivity, and to basically separate that out. I mean, we could have estimated that model without including it, and the labor productivity change would have been captured in the data. But to be able to kind of talk about it, if productivity growth outside of the model range, like as we start doing forecasts, if productivity growth was higher or lower, having it isolated, we can look at the impact of that as well.

Q. Okay. And then the next page, please, you mention the use of dummy variables. Can you just briefly summarize the concept there?

A. Yeah. I just wanted to finish the last point on that page.

Q. Sorry.

A. That's okay.

So the other cost category is a very broad

category of costs. It includes things like repairs and maintenance costs, depreciation, property taxes, plant supplies, packaging costs, ingredients. The return on investment allowance is in that number as well, as well as general and administrative costs.

So it would be difficult to kind of get indicators of drivers of all those individual costs separately, so what we did was we used the U.S. Producer Price Index for intermediate goods. Your factories, dairy manufacturing plants are buying inputs from all over the country, and essentially that is a measure of kind of inflation of costs, at that level, at the intermediate level, over time. We also included a productivity index that is a little different. It's not labor productivity. It is total factor productivity. So it looks at the productivity of not just labor but materials and energy and other things too.

Q. Okay. And let's go to the next page.

A. Yeah. So dummy variables, I know if you are not in the econometric world, this is a strange sounding name. But some of the changes can --

Q. Can you put --

A. Sorry.

Some of the changes in the -- in the cost numbers can't easily be explained by changes in those other variables that we have identified, like energy or labor cost or productivity changes.

And basically what you see in the data is you will

see a shift in the cost that isn't explained by these changes in the other variables, and when you examine the data, you recognize, okay, we have got -- something else is going on here. And in some cases those are things we know, just from knowledge of the industry. For example, if one the largest manufacturers in the state opens a new plant, for example, there's startup costs, and for -- for a period of time when that new plant opens, usually the first year, there will be much higher costs associated with that. So that would be a known event.

Something else that might be known is if -- if we knew somebody that -- you know, there was a big union -- you know, unions represent workers in multiple plants, and there's a new labor contract that shifts labor costs up higher, we can account for that with one of these dummy variables. And the reason that we -- and there may be some shifts, sorry, that are -- that are unknown, but you can see it clearly in the data and you know it isn't related to one of the explanatory variables you have in your model. So you -- you can deal with that with a dummy variable and that kind of allows for that shift.

The reason you include these dummy variables is that it does two things: One, it better captures -- it helps you improve your explanatory power of costs, so if -- your independent variables and your model does a better job of explaining changes in cost when you include them.

The other reason is that it -- it leads to better

estimates, more accurate estimates of the impact of these other explanatory variables like energy, prices, labor costs, productivity, than you would -- better than you would have if you excluded the dummy variables and estimated the model without them.

Q. Okay. Next page, please. What are you showing here?

A. Okay. So this is just a look at my next three slides, really. Look at the three cost component -- components that I'm estimating.

So this is the actual CDFA data, and this first slide is cheese manufacturing costs from 2002 to 2016. And I don't have total costs listed there, but I have the three components. So you've got utility costs, which is the gray line at the bottom; labor cost, which is sort of an orange-brown line in the middle; and then all other costs, which is the blue line at the top.

And for example, if you look at -- let's look at the utility cost, which is the line at the bottom. You will see starting in 2005 for like three years there was a jump upward in that utility cost number. And actually, when you look at the reports, you can see a jump in sewer cost, which is a component of utility cost. And we know at that time one of the larger cheese plants in the state was having some issues with whey disposal and -- and so they were having to dispose of whey in a way that was more costly, and that was reflected in those sewer costs that were picked up. So that's a case where you put a dummy

variable in, and it is capturing that short-term event, and that -- you know, that would be the case in that situation.

Here's a -- here's another look at costs for butter manufacturing in California.

Q. Okay. We're now on page 10. Go ahead.

A. Right.

And -- and here, for example, you see -- to that page -- on the top line, you see a couple of years where costs bumped up dramatically in 2008 and 2009. So that -- that's one that corresponds to when a couple of new plants were opening in California that were sizeable enough that had an impact on costs.

Q. All right. Shall we go to the next page, which is page 11, the nonfat dry milk page. Anything -- or is that what you were just talking about?

A. No, I was talking about butter, but nonfat dry milk looks similar, in part, because they often go together when you open a new plant. So the corresponding new plant is influencing nonfat dry milk as well as butter.

We also saw a shift in utility costs that occurred around the same time.

And then we -- sometimes you will see an ongoing change that would be like a change in the slope. And so, for example, if you -- if you look at the labor cost number, sort of 2002 through 2011 or so, you have a gradual increase in labor cost and then a steeper one

afterwards going forward, 2012 and later. It might be kind of hard to see that on there. But looking at the numbers, you could see that change, and so you -- you know, here is a case of not really sure what was going on there, but it didn't seem to be related to the change in wage rates. So you use a dummy variable to represent there's something else happening that's accelerated the rate of change in that cost.

Q. If we go to the next page, page 12, is this an indication of the actual dummy variables that you used?

A. Yeah. So these were some of the dummy variables -- or these were the dummy variables used in the different models, and so you can just see, it is just -- they are binary variables. So it's a 1 when that particular condition that you -- you know is happening is present, and it's a zero otherwise. So it has an impact, you know, when -- when the -- when there's a 1 in place, it has an impact on the model prediction. It does not have an impact when the 1 is -- when it's a zero.

Q. Okay. Next page, please.

Tell us what the model and trend results were.

A. Right. So we -- we estimated those three equations of those three cost components for each of the three commodities, butter, cheese, and nonfat dry milk. And what we found is that the estimated equations generally showed good fit and strong overall correlations for the equation.

Q. Okay. Explain to us what that means.

A. Yeah. So basically there's a measure of fit that we look at. It's called the R-square. And we actually look at something call the adjusted R-square which is a goodness of fit measure. It's determined by looking at the sum of squared errors, which is a statistical term. That is a result of the -- it is a total that you see in the actual cost data. We compare that to what's explained by the regression.

And so -- so basically one way of interpreting it is that if an R-squared, say, has a value of 90, .90, it's explaining 90% of the variation in the dependent variable. So your model that you have estimated is explaining 90% of that variation. That would be how you interpret the fit.

And the overall correlation is just -- you know, it's very much like it. This is measured using an F-statistic, where you look at does the model do a better job of explaining the changes in the variables than no model at all. So it's a pretty easy -- easy bar to clear, but it -- it's -- it's certainly something you want to look at.

Q. And -- and ultimately what did you -- sorry, you also have something called correlation coefficients?

A. Right.

Q. Can you explain what that is?

A. So in addition to the F-stat, we have the t-tests of the individual parameter estimates, and that's basically a test of, is that parameter that you have estimated, which is the -- you can think of it as a slope

associated with the independent variables, like wage rates and energy costs -- is that, in fact, statistically different from zero, is it -- you know, does it have some explanatory value in the model or does it not.

And then the correlation coefficients, those are included instead of an R-square for the total cost because we didn't actually estimate a total cost model. We estimated a utility cost model, a labor cost model, and an other cost model. Then we are summing up those predicted values from our model, each of those individual three cost models, summing those up to come up with our total cost estimate. And then we're comparing that estimate from those three equations to the actual total cost, and that's the correlations that I'm talking about in that bullet point. So the correlation between the predicted cost for cheese and the actual cost was .92, where 1 is a perfect correlation, so .92 is kind of getting at the same idea, you are explaining a lot of the variation in the cost with the model.

Q. Overall what was your conclusion as to whether the model was doing a good job of predicting actual?

A. Yeah. So the fact that we had significant regression F-statistics, we had a lot of individual parameter estimates that were significant -- statistically significant different from zero, and the fact that the correlations of the overall cost predictions and the actual costs were quite high, suggests the model does a good job predicting actual costs.

Q. And then if we go on to page 14, is this the actual models?

A. So these are the actual models that we estimated. And so you can see this is the cheese manufacturing cost model. There's an -- just going through that first equation for labor cost. There's a -- what we call an intercept or a constant parameter; that's the a11. There's a slope associated with -- with the manufacturing wage rate; that's b11. And then there's a slope factor c -- c11 associated with the labor productivity. And then there's an error term. So the error term is, you know, if we're predicting labor costs, are we above or below it. Is the predicted version above it or below it, and that's what the error term is.

Q. All right. And you devised a similar formula for utility costs and other costs as well, correct?

A. Correct.

Q. And if we just go forward, you have a similar set of modeling of equations for butter on page 15?

A. Correct.

Q. And then nonfat dry milk on page 16, correct?

A. Correct.

Q. And then tell us what page 17 is -- is discussing.

A. Yes. Page 17 is -- this is Table 3 from the IDFA Exhibit 2, which was the actual paper that's been up for a while. And this is basically all of the estimated parameters. So if I go back a slide, if you are looking at this, you know, a31, c -- it is the parameters

associated with all those variables.

And so for cheddar cheese, for example, we have got a constant that was estimated associated with each cost component: Labor, utility, and other. We have manufacturing wage and labor productivity in the labor column. We have natural gas and electric prices in the utility column. And then we have some of the dummy variables like excess whey down there.

And the asterisks that are located to the right of each of those estimates are an indicator of whether the parameter estimate was statistically different from zero at the -- there's two asterisks at the 5% level; if there's one, it's at the 10% level.

And what does that mean? What does that significance of the 10% level mean? It means, that if -- if it's significant at the 10% level that there is only a 10% chance that you have erred in rejecting what's called the null hypothesis, and the null hypothesis is that that parameter is actually zero. So it's really not telling you a lot other than the fact that we -- we think that number is not zero, and we have been able to show that statistically.

Q. Okay. So if we go to the next page, tell us now how you took all of this information and analysis based upon what happened between 2003 and 2016 or 2002 and 2016 --

A. Yes.

Q. -- in California, how did you then forecast what

manufacturing costs would be in 2022?

A. Right. So those estimated parameters on -- on the screen there, those -- those were used to -- in concert with data that is explanatory variable data in years subsequent to 2016, to make projections forward at times. So basically you multiply the data series -- and let's use one example.

If I have got wage rates from 2017 to 2022, I have got a parameter estimate associated with labor -- if I go back -- a manufacturing wage rate associated with cheese labor of .0049, right? So I'm going to estimate -- I'm going to multiply that .0049 times the manufacturing wage rate series that I have got in my dataset for 2017, for 2018. And doing that for all the parameters in the model, you can then come up with a predicted value in those years beyond the CDFA dataset.

Q. Okay. And you -- you performed that calculation for each of the each of the variables you were tracking; is that right?

A. That's right.

Q. And what was the end product of this effort?

A. Yeah. Again, reiterating the fact that for dry whey what we did was we took the nonfat dry milk model estimates and predicted values and added $0.03 to those because we didn't have an estimated whey model.

One of the things that we found is that looking at the 2022 numbers, they are all roughly around $0.10 a pound higher than the 2006 numbers. So just to kind of

give an idea on a per pound of product basis, kind of cost change, that's -- that's kind of what it looked like.

So I have a table -- this was an extract from Table 5. So this is part of Table 5 that's in the actual report. I have pulled out, you can see the 2006 model predicted value. That's not the actual CDFA model. Those are in the earlier table that we went through. But I also have 2016 listed there, which was the last year that CDFA had audited data. And then the bolded numbers are all predicted values going out -- or forecast values, if you will, going out 2017 through 2022.

So you can see that the model had a predicted value in 2006 of 18.66 for cheese. The actual value I believe was 19.88. And this was a case where even within the dataset the predicted value was lower that year. But the predicted value is going out. You can see by 2022 we have a predicted value of just over $0.30 a pound from the model for cheese, cheese manufacturing costs.

Q. All right. And take us to the next page, page 20, and tell us what that is showing.

A. Okay. So in addition to the -- to the models we -- with the cost equations that we estimated, we also just took a look at overall manufacturing costs and did a -- estimated a trend. So this is just a straight line that fits the data within the sample, and it is basically done by taking the manufacturing cost and regressing it against the year. So there's a constant term, then there's a slope equation with the year, and then that will

give you a predicted trend value.

And so we fit that trend and then, again, projected those forward to make forecasts from the trend. And this just shows what those would have been. And I think what you -- what you see when you look at those numbers is that certainly out in 2022, the trend values are below what the model estimates are for manufacturing costs. So the CDFA trend, for example, for cheddar cheese was $0.27, a little over $0.27, and the model estimate was $0.30. So the trend is $0.03 lower.

You go back, say, 2019, and the trend was $0.2573 cents, whereas the model estimate was $0.2521. So in that one, the trend is actually higher than the model estimate.

So I -- the only reason I'm kind of making this comparison is that the model is picking up the changes in price levels or price variables like the PPI index or like the manufacturing wage rate or like the energy cost. And to the extent that those have accelerated in the last couple years of the timeframe here that we're looking at, say, 2021 and 2022, it's not surprising that the model is picking that up whereas the trend wouldn't pick that up. The trend is just dumb. It increases at a -- you know, the same rate every year going forward, and so there's some years where the trend is above what the model predicts and some years where it's below.

Q. In the real world, have actual costs gone up in a way that the model reflects?

A. Well, we had some testimony from some witnesses --

kind of just went through this slide. We have some testimony from some other witnesses. So these are the percentage increases that the model predicts. With cheese and -- cheese costs in 2022 versus 2006 of an increase of 51.2%, whey 50.4%, butter 72.2%, and nonfat dry milk 59.4%. So that's what the model predicts.

And we have had some testimony -- and this is just -- I was listening to most of this testimony, and, you know, what I took away from it is that the AMPI witness noted a 47% increase in the cost of manufacturing bulk cheese from 2008 to 2022. We're showing a little bit more than that from 2006 to 2022. Land O'Lakes noted a combined 70.26% increase in the cost of manufacturing butter and nonfat dry milk from 2007 to 2022. We had a 70-plus -- 72% increase on butter and a -- I forget what the -- 59.4 on nonfat dry milk. So, again, similar range. And then the Northwest Dairy Association had noted an 80% increase in the cost of manufacturing products over, I guess, it was -- I didn't have the time period in here. I'm assuming it was the same general time period.

Q. Okay. And what utility do you believe this -- the analyses you have performed have for purposes of USDA's determinations of Make Allowances?

A. Well, I heard the question asked of Dr. Stephenson a little bit earlier today, like, you know, was it better to have an econometric model or was it better to have actual plant data from surveys. And I would agree with him, you know, plant data is -- is -- I would find that

inherently more reliable than an econometric model. But this is another data point, another way to look at estimating those costs. And it seems to -- when used alongside the cost testimony of other witnesses and Dr. Stephenson's work, I think it -- it helps sort of fill out the picture and -- and provide more corroboration of the costs that are being talked about.

Q. Okay. And to -- going back to IDFA Exhibit 2, which is Hearing Exhibit 180, is -- is -- is this a -- you know, this is the entire report reflecting the work that you did on this project; is that right?

A. Correct.

Q. And the PowerPoint presentation we have gone through, which is Exhibit now 195, is that -- have you hit the, sort of, if you would --

A. The highlights.

Q. -- the highlights of that study?

A. Yes.

Q. Okay.

MR. ROSENBAUM: At this point, your Honor, the witness is available for cross-examination.

THE COURT: Okay. Video -- did we lose the video for a second?

All right. Cross-examination for this witness, other than AMS?

CROSS-EXAMINATION

BY MS. HANCOCK:

Q. Good afternoon, Dr. Schiek.

A. Good afternoon.
Q. You just ended by saying that you do agree with Dr. Stephenson that a cost study model is a better data source than using an econometric model, I guess. And then I didn't hear the last part of it, which is where you landed.
A. Oh, I was saying this is another approach, and I think when used in concert with the other sources of data testimony from individual companies about their costs and Dr. Stephenson's work, it's just another point of corroboration, I guess, a point of reference to kind of understand where those costs are.
Q. Okay. And did you assist IDFA in putting together their proposal for their Make Allowance increase?
A. Not in putting together their proposal. IDFA approached me and asked if it -- if I thought it would be possible to estimate costs from CDFA data. And I thought about it for a while, and I said, well, we have a data series; we probably could do that. And then they asked if I would do it. So -- so my understanding is that they utilized this work as well as Dr. Stephenson's work.
Q. Do you know how they used it for the proposal that they made?
A. Other than looking at the numbers, my understanding is they averaged the two cost estimates.
Q. Okay. So do you understand that they took Dr. Stephenson's cost study results and then the econometric results that you have put together, added

them, divided by two, and then used that as the first-year numbers that they are proposing?

A. I think they -- that would be the -- my understanding, I don't know if I have got this right, is that they -- that would be the final year of their implementation schedule. So they would look at Dr. Stephenson's '22 -- 2022 numbers, they looked at these 2022 numbers, as you described, added them, and divided by two to create a simple average, and then that would be the end year. And then they implemented it in a -- over a four-year period, I think, so with a -- with a chunk at the beginning and then equal steps after that.

Q. Okay. Thank you for that correction and clarification.

Do you know how it was that they -- that they took the average of yours and Dr. Stephenson's study that was then divided by two to get to their full amount of the Make Allowance increase, do you know how it was that they backed out and got to year one?

A. Just from looking at it, I mean, I don't know -- I don't know the exact process they went through, but from looking at it, it looks like year one is about half of the total increase.

Q. Okay. Just based on another percentage --

A. That's what it looks like.

Q. -- allocation? Okay.

That's at least what you understand it to be when you look at it?

A. Yeah.
Q. So let's -- let's look at -- let's just take the most recent CDFA manufacturing cost annual. And is this a study or a survey?
A. I would say it's a survey of plants in California regarding their manufacturing costs. And that was audited, yeah. So they talk about it as a study. I use the term study because that's how they refer to it here. But, yeah, it's a survey of plant costs.
Q. Okay. Is there a difference between a study and a survey? In your world, I guess I should clarify.
A. I think you could try to make one, but I think, people could refer to a study -- a survey as a study.
Q. Okay. And I thought that I heard you say that the CDFA data was audited. Did you say that?
A. It is. It was, yeah.
Q. Do you know when it was audited?
A. So -- okay. So my understanding of how that practice worked is CDFA would request cost data from the plants each of these years, and the plants would submit their data. And then they had a team of -- it was the cost -- manufacturing cost unit, a team of folks who would look at the data, that would go into the plant, meet with the folks, and ask questions about the data. They would ask for documentation. They would look at those. And then occasionally they would say, well, we think you need to -- you know, you didn't include everything, so you need to, you know, pull some more data from this area to get --

to ensure that the categories -- the cost categories were accurate and to ensure that the data was accurate.

Q. If you look at Exhibit 156, which is the 2015 data study, could you point to anyplace in here where it says that this is an audited study?

A. Exhibit 156. Are we looking at the same one? I have got 194 on this -- oh, was this introduced earlier as 156?

Q. This is the one that was introduced earlier, so that's why my number is different. It is Exhibit 156.

A. I don't know that it says that it was audited, but it says, "The auditors worked with plant management to gather data on all aspects of the operation, review plant records on site, and allocate plant expenditures to each product manufactured by the plant. Studies are conducted and developed in conformity with generally accepted accounting principles, cost accounting techniques, and instructions contained in the dairy marketing branch's audit and cost procedures manual." That looks like an audit to me.

Q. Okay. Other --

THE COURT: Do we have a page number for that?

MS. HANCOCK: This is on page 3, your Honor.

THE WITNESS: Page 3 of -- yeah.

BY MS. HANCOCK:

Q. So is this what you are referring to when you say that the information is audited?

A. Yes.

Q. Okay. Has anybody from CDFA ever told you that the information was audited?
A. Yes.
Q. Who was it?
A. Well, that would be the branch chief referred to it as an audited study, and the head of that unit, Ed Hunter, called it -- referred to them as audited.
Q. Okay. So it's your belief, then, that it is audited based on those conversations and that statement?
A. That's correct.
Q. Okay. And you understand that the information in -- that you collected or that you evaluated is all based on California production?
A. Yes.
Q. And do you believe that California is representative of the rest of the country?
A. Representative to the extent that California is subject to a lot of the same -- first of all, they are making the same products and subject to a lot of the same cost influences. There are certainly differences, and even back in 2006 there were differences between, you know, Dr. Stephenson's numbers, from that time period -- 2005 to 2007 when he was collecting his information -- and the 2006 CDFA numbers. So there are certain costs that are different in California, you know, for -- for a while. I think wage rates have been higher in California than they are in other parts of the country. And -- but there's variations between plants depending on their labor

contracts, whether they are union or non-union, and what kind of contract they have with their workers, so that that kind of variation would be nationwide.

So I think it's -- it's representative. It may not be exactly --you know, I wouldn't necessarily expect that it is the exactly the same as U.S. weighted average for sure.

Q. So you mentioned wage rates. Do you know what the minimum wage is in California?

A. I believe it's $15 an hour now.

Q. I think it's $15.50. Does that sound right?

A. I'll take your word for it.

Q. Okay. Do you know what the minimum wage is in Wisconsin?

A. I assume it's less, but I don't know what it is.

Q. It's actually 50%, so it's the federal minimum rate.

A. Uh-huh.

Q. Does that sound right to you?

A. I -- I don't have a reason to dispute you.

Q. Okay. Do you have a way to factor into your analysis that the minimum wage in Wisconsin is 50% of what it is in California?

A. No. This is really a prediction of California costs.

Q. Okay.

A. Because we're using California data to do it. Yeah.

Q. Okay. And extrapolate from that in a way that would be --

A. Reflective of California conditions.

Q. Okay. And so you're not suggesting that it would be reflective of the rest of the country's conditions?

A. Not any more than the fact that they are operating in the same environment -- you know, the same general business environment because they are making the same products. But, yeah, it's not -- the costs can be different in other parts of the country for sure.

Q. And you would agree with me that there are other parts of the country that have very different cost structures than what California has?

A. I believe that's the case, yes.

Q. And in particular, in large part because of the different regulatory schemes that -- regimes or schemes, that have -- that have developed in California as compared to the rest of the country?

A. Your -- I'm not sure which regulatory schemes you are referring to, but if you are saying we seem to like a lot of regulation in California, then I agree with that. We have high costs -- we have a lot of regulations and high cost -- higher cost of compliance.

Q. And businesses, whether it's the dairy industry or other -- any other business in California, tends to pay a higher cost because of the regulatory laws in California that govern business transactions in general. Would you agree?

A. Oh, yeah. Yeah.
Q. Do you know why CDFA was conducting these manufacturing cost studies?
A. Well, the primary motivation for it is my understanding -- and, again they started doing this long before I came to work at Dairy Institute -- but my understanding is it was to support the determination of the pricing formulas that they were using for the manufacturing classes of milk.
Q. When they were under a state order system?
A. Right. Under the state order system.
Q. And that's why it stopped in 2016?
A. Correct.
Q. Because then it became the Federal Order 51?
A. Correct.
Q. Do you know how they were using the studies in order to support their pricing systems?
A. They were using it as the basis for establishing Make Allowances under -- under their system, and the sort of primary benchmark was the weighted average manufacturing cost. I think in the later years, latter part of the series, it was common for the weighted average manufacturing cost to simply become the Make Allowance. Earlier years there was a little more discussion about that.

Sometimes they might set a Make Allowance that was above or below that number, depending on -- they were looking at other factors, too, like, how much the volume

of the plant -- of the volume of product produced would have been covered by the Make Allowance, how much dispersion there was among costs of -- sometimes you would have costs that were bunched tightly together where they -- the weighted average cost would be highly reflective of all plants.

There were other cases where you might have more of a spread, and then, I believe -- and I can't cite specific examples, I'm just remembering, you know, hearing discussions and decisions, but I believe there were some cases where CDFA chose to implement a Make Allowance that was either above or below the weighted average because of -- just because of that dispersion, you might have an outlier plant that had really, really low costs, and that would have -- setting it at the weighted average might have left many, many plants without their costs covered, so they would maybe set it higher in that case, and in another case they may set it lower because there were some high cost outliers.

Q. Okay. So if I'm understanding you correctly, your understanding of CDFA's use of this cost study that they did annually was that they would use all of the data that they collected, and then they would take real life information that they have about the plants that were operating in California, and make sure that it was reflected in the data, and if it wasn't, they would make additional adjustments, either above or below, and use the totality of that information to set Make Allowance?

A. Yeah. That's probably fair. I would -- I would probably just say they would -- they would take into account more than just the weighted average manufacturing cost. They would look at other factors and establish the Make Allowance.

Q. Okay. So they were really taking a 360-degree comprehensive review?

A. They were taking a broader view, yes.

Q. Okay. But at the very core of it, was this audited mandatory cost study --

A. Correct.

Q. -- that they conducted on an annual basis?

A. Yes.

Q. Okay. And they did not ever use the econometric modeling that you are using in order to set Make Allowance?

A. No. They -- they collected the costs directly from the plants.

Q. And the data that they collected each year was even more comprehensive than what Dr. Stephenson collected under his cost study as well?

A. More -- yeah. It was -- it probably represented a higher percentage of the plants and the volume than his study.

Q. And then also taking into account that totality, that comprehensive approach that you just described?

A. Yes.

Q. Do you know what percentage of the California

cheddar cheese or butter or nonfat dry milk and dry whey were represented in those manufacturing studies?

A. I think it -- it varies from year to year, but it's -- it's usually if you look at -- if you want to know the numbers, it's usually in each of the summary tables. I want to look at the nonfat dry milk study from -- I have it marked as Exhibit 194, but it's your --

Q. 156?

A. -- 156.

Q. And just so our record is clear, I don't believe we have an Exhibit 194 yet.

A. Oh, okay.

Q. Because I think that was --

A. 156 then.

So this is on page 8 of Exhibit 156. We're talking about volume. There's a table, and then there's some bullet points below the table but before the numbers start. And I think that here it says the volume includes -- let me back up go one higher. It's the first bullet point, towards the end, it says, "The eight plants processed 555.02 million pounds of nonfat dry milk during the 12-month study period January through December 2016 representing 97.44% of the nonfat dry milk processed in California."

Q. Okay. And -- ooh.

A. I was just going to say, and I think there's a similar volume number reported for each of the commodities, and I think they do that every year.

Q. Okay. So greater than a 90% sample size; is that fair?
A. In terms of volume, yeah.
Q. Okay. And did you hear Dr. Stephenson say that in his cost study, for the one that -- the two categories that he believed he had a good representation on, he believed it was probably around 50%?
A. Yeah.
Q. And then there were two categories that fell somewhere between 10 and 50%?
A. Yes, I -- I had heard the testimony.
Q. Yeah. And -- and then did you also hear him say that sample size matters?
A. Yes. I heard him say that.
Q. Do you agree with that, that the sample size matters in the accuracy of the information that's reported?
A. Yes. The more representative your sample is, the more representative it is of actual cost. So I would agree with that.
Q. And we saw that when he had his 2021 study, and then his 2023 study compared to that, the numbers were different enough that he had to look into whether what those differences were. Did you hear that testimony?
A. I heard that testimony, yes.
Q. And did you hear him have the conclusion that what he -- what he had been able to figure out from that is that it was just that the sample size matters?

A. I heard him say that, yes.
Q. And so you can see that the sample size, at least in that example, can make wide swings in information depending on what data is collected?
A. I think it can. Sometimes -- sometimes smaller sample sizes can be representative, but obviously the more -- the more volume you have covered, the more confidence you have that it's representative.
Q. Do you know how much it cost CDFA to conduct that study every year?
A. I do not know.
Q. Okay. So I want to -- the totality of the information that was used to compile your econometric modeling stopped at 2016; is that right?
A. In terms of estimating the regression model, yes.
Q. Okay. And in terms of having the actual data that populated your model?
A. Correct.
Q. And then after 2016, I think you described in your summary in -- I'm sorry, I didn't seem to write down the exhibit number on your PowerPoint. What's the exhibit number on the PowerPoint?
THE COURT: 195.
MS. HANCOCK: Thank you.
BY MS. HANCOCK:
Q. Okay. And I think in your Exhibit 195, you had provided a summary of the numbers on page -- on page 19 that shows you had the actual numbers, and then you have a

bolded line, and then everything after that is just predicted values based on your modeling; is that right?

A. Yeah. And actually the -- for example, if I'm looking at what's -- what I have called Table 5a on that page, where -- the table with the manufacturing cost model predicted values, the -- I think I -- if I didn't make this clear, the 2006 and 2016 numbers there are actually the model estimates within the sample period where we had the actual data. So those two aren't the actual costs. After I did the regression model, what did the model predict for that particular year? And then, of course, after 2016 all we have are the model predictions because there is no more actual CDFA audited cost data, so those are the model estimate -- or projections going forward.

Q. Okay. So I remember you saying that, but it didn't sink in with me in a way that I understood it.

A. No, but the -- where I talk about the percentage increases, those are based on the percentage increases of the predicted value versus the actual value that was in the earlier table in that PowerPoint.

Q. Okay.

A. Just to draw a distinction.

Q. That's okay. And I'm just going to dive in a little bit deeper just to see if I can understand it a little bit better.

When you say that the 2016 and 2006 numbers that are here are based on the model estimates, aren't the model estimates, don't they originate with the actual

numbers?

A. They do. But with a linear regression, even within the period where you have the actual numbers, the model is trying to fit a -- it's trying to compute a linear fit of a model throughout the whole period. So sometimes you are not going to hit the actual value exactly, you will be above or below it with your estimate, because it's a linear estimate, so it -- it -- sometimes the costs don't necessarily go up in line with the model. And so you will have some periods where you have an error on the positive side and sometimes there will be an error or the negative side. But the model is constructed in such a way to minimize those errors so you get the best fit possible of the data with your regression model.

Q. Is that a way that you can verify whether your regression model is working properly, is when you do -- when you do the lookback period where you had actual numbers, that you can see if you come close to where those numbers are?

A. Yeah, that's one way of thinking at it -- thinking about it. But the bottom line is, you know, you expect you are not going to hit it with perfection. I mean, it is just not -- you're not going to -- unless it has some sort of straight line, you know, the cost line up in a very straight line. But you are going to fit a model using this technique that has the -- does the best job of sort of threading that needle.

Q. Okay. And in this modeling that you are doing

is -- you heard Dr. Stephenson talk about how this is not, in his view, the best way to predict Make Allowance costs because you don't have the opportunity to factor in things like specific product variations?

A. Yeah. I -- I heard what he said, and I don't disagree with it.

Q. Okay. And then in addition to not being able to factor in product variations, you also don't have the ability to factor in different productivity measurements at the plant. For example, if a plant was newly constructed and was much more efficient, that's not something that this model could take into account.

A. No, this model wouldn't take into account individual productivity gains at an individual plant. You wouldn't -- you wouldn't see that, at least, in the forecast. Now, it would capture some of that if it's happening during the period where you are estimating the data, so it would capture some of that, in the 2002 -- or 2003 to 2016 period. But it -- it wouldn't have the ability to capture specific plant innovations or, you know, even brand new technology that happened subsequent to that period where that -- where -- where the sample period is.

Q. Okay. So I'm just going to paraphrase to make sure I understand what you are saying. You are saying if -- for example, if a plant today was constructed and it was able to capture a 20% more efficiency in productivity, if in the window of time between 2006 and '16 a plant had

been constructed that similarly captured a 20% improvement in efficiency, so it was in your input window, it could be forecasted out in your modeling in a way that would still capture it in your later time period?

A. It could capture some of that, yeah.

Q. Okay. But we don't really know as we look back if that is the case; is that fair?

A. That's fair.

Q. And there's not really a way to ensure that this modeling is capturing new innovation that might not have occurred during that same time period?

A. That's correct.

Q. So if we become extra efficient now with AI or some other new technologies that could be implemented in a plant, robotics, whatever it might be, if it hadn't happened at the same efficiency level previously, there's no way for it to be captured?

A. Yeah. I think you are right. That is -- I mean, that is the limitation of this kind of analysis.

Q. Okay. And then if we go to the next page in Exhibit 195 on -- you have a trend line. You use -- this is just the two methods that you used in your evaluation; is that fair?

A. Yes.

Q. Is a trend line taking the input period and just drawing a straight line forward?

A. Exactly. That's all it is.

Q. Okay. And I need to look at your -- do you have

your Exhibit 180 in front of you?

A. Exhibit 180 is the -- is the report?

Q. IDFA Exhibit 2. Yeah.

A. Yep, I have that.

Q. Can we turn to page 12?

Is table 5 here capturing the data in both your predicted modelling and then that straight line trend analysis?

A. Yes.

Q. So if I drew a line down the middle of the page it would be right under the word linear, and that would separate those two?

A. Correct.

Q. Okay. And if I look at 2021 for cheese, for example, we have $0.2707 that your model has predicted; is that right.

A. .2707, yeah. That's correct. Right.

Q. And then if we look at what the trend line is, that's 26.78% -- I'm sorry, $0.2678.

A. Right.

Q. And then fairly close to what your model predicted --

A. Correct.

Q. -- is that fair?

A. Yep.

Q. And then if we compare the whey column, that's similarly close; is that right?

A. Correct.

Q. And then the butter column is pretty close as well, $0.2201 and $0.2193?

A. Correct.

Q. And then nonfat dry milk, pretty close as well at $0.2447 and $0.2395?

A. Correct.

Q. Is it a fair conclusion to say that your model that you created is just about as accurate as a straight line linear trend model as well?

A. Well, the numbers you looked at, yeah. I think -- I think the trend and the model estimates are fairly close, and I think that's because there is a fairly strong trend in the cost line from 2003 to 2016.

I think where you are seeing the divergence is when there is a big change in those explanatory variables, so we -- we begin to see -- in 2021, we had inflation take off, and we begin to see more elevation in the cost. And I think if you look back at, as I pointed out earlier, to 2019, the model costs were lower than the trend. And I think we were picking up the fact that those price numbers were -- you know, cost of energy and cost of materials and those sorts of things were not moving up, in fact, had eased because the Fed was -- well, we -- we -- the Fed had raised interest rates in late 2018, and that led to a slowdown in the economy in 2019, and so we didn't see those price variables accelerating as fast. The model is capturing some of that, the trend is not.

So, you know, there's going to be times where the

model will be close to trend, there will be times where the model estimates will be below, and there will be times where the model estimates are above.

Q. Okay. And neither one of which is necessarily based on actual market conditions?

A. Well, the model does take into account the economic conditions that we have included as explanatory variables, like wage rates, the Producer Price Index or the -- you know, what we are using as a proxy for material costs, energy costs. The trend does not take any of that into account.

Q. Okay. And while your model can take it into account, it doesn't provide an actual adjustment for it, does it?

A. It provides an adjustment for it that's related to how actual costs adjusted during the sample period.

Q. For California?

A. For California, correct.

Q. Okay. Do you agree with me that -- and maybe you have already, but I'm just going to make sure I have asked this -- do you agree with me that it's important for manufacturing costs that the USDA uses to set Make Allowances are accurate and current?

A. Yeah. I think it -- it is -- that's the goal, right, is to set manufacturing allowances based on current and accurate costs.

Q. When you were -- when you were calculating -- when you were calculating your nonfat dry milk, you -- you

didn't have the data in CDFA's materials, at least not for all the years; is that fair?

A. Are you talking about the dry whey?

Q. I'm sorry. When you were calculating the dry whey, you did not have all the figures from the CDFA data for all the years?

A. I had all the figures there were. They just didn't do the study -- they only did the study for four years on dry whey.

Q. So you took the difference between nonfat dry milk and dry whey that's in the current Make Allowance and used that to establish your dry whey number and the numbers that you put together?

A. For dry whey, yeah.

Q. And it's $0.03?

A. Correct.

Q. And so it's nonfat dry milk plus $0.03, and then that's how you calculated the dry whey number?

A. Uh-huh.

Q. Is that a "yes"?

A. Yes. That is a yes.

Q. But Dr. Stephenson, if you look at his spread in 2023 between dry whey and nonfat, it has $0.0611; is that right?

A. I -- let's see. I don't think I have that in front of me, but I'll take your word for it.

Q. Did you review his numbers?

A. I looked at his numbers. I just don't have them

in front of me right now.

Q. Did you consider using the spread that he came up with as the spread for your calculation?

A. No. I -- when I was doing my work, we didn't have his most recent numbers. And because the CDFA data used a different way of allocating unallocated costs than his 2021 numbers, so I didn't use those because that was a different methodology. So, you know, I just went with an estimate that -- $0.03 is a number I have heard in the industry that is representative of incremental drying costs, whey versus nonfat dry milk, so -- and it -- it was the approximate difference in the Make Allowance. So those -- that was the reason I used it.

And I don't know if that number is accurate or not. I -- I have asked people who are knowledgeable about whey manufacturing, if that number still makes sense or has it gone up, has it gone down. And, you know, I kind of get, well, that might be -- yeah, might be $0.03. You know, it's kind of -- I don't -- I don't -- I can't put a lot of faith in whether $0.03 is the right number for incremental drying costs or not, but that's -- that's kind of what's in the current Make Allowance, so that's what I used.

Q. Okay. Is it fair to say for your modeling it is essentially a placeholder in that column for -- I should say -- strike that. Let me say that again.

Is it fair to say that in the numbers that you have concluded, it is somewhat of a placeholder based on

the modeling that you did?

A. I don't know that I would use the word "placeholder." It is an estimate using information outside the modeling work that I did. It's, you know, sort of using an external number that we think is representative of that incremental drying cost, but it's not -- it wasn't an analysis, an estimated whey cost or estimated the cost of dry whey. It's just what -- you call it a bootstrapped method maybe.

Q. Okay. Bootstrapped instead of placeholder.

A. Placeholder, yeah. Isn't that an important distinction, though?

Q. And you said that at the time that you did your modeling, you didn't have Dr. Stephenson's 2023 survey?

A. Correct.

Q. You only had his 2021 survey?

A. Correct.

Q. And if you would have used the numbers from his 2021 survey, the difference would have been instead of plus $0.0611, the number would have been a negative $0.0283. Does that sound right?

A. Yeah. And I remember that was one the things that gave me pause, because there's very little -- it's hard to understand how it could cost less to dry a product that is more dilute than a product that is less dilute. And the fact that it had a lower drying cost could be possible if the dry whey plants were larger and more efficient than the nonfat dry milk plants, but that's not -- that doesn't

jive with my understanding of how dry whey plants operate versus nonfat dry milk plants.

So, yeah, that -- that was one of the numbers from the way he had allocated costs in that study that gave some folks in the industry pause, as to maybe that allocation cost isn't working quite right because that doesn't -- that doesn't make sense to those of us who -- who have kind of watched and think about how much -- how much it costs to dry whey versus nonfat dry milk.

Q. Okay. And so the fact that his 2021 numbers showed that the cost to dry whey was $0.2650, but then the cost of manufacturing nonfat dry milk was $0.2933, that didn't -- it didn't sound right to you?

A. Didn't sound right. Exactly.

Q. Did you hear him earlier when he said that there were concerns in the industry about his 2021 butter number as well?

A. Uh-huh.

Q. Did you have those similar concerns?

A. When I looked at those numbers when they were released, I -- you know, I saw the cheese and the whey, and I was like -- or the cheese number and the whey number were kind of like, yeah, I could see those costs, those sound like in the ballpark. But the butter/powder seemed out of whack. You know, it seemed like, okay, this is very different because the butter cost went down, substantially, and the nonfat dry milk went up substantially, and that that just didn't look right.

But then, again, you know, I'm -- I'm most familiar with the CDFA data, and they allocate those costs on a solids -- total solids basis, which I understand is closer to industry practice than the transformation approach that Dr. Stephenson was using.

Q. Okay. So do you believe that the transformation valuation allocation method caused some of the issues that you were seeing in the numbers?

A. That was -- you know, without knowing the data -- I mean, he's looking at the data, and he knows what plants are included and that kind of thing. Just looking at the results, that would be -- that would have been my hypothesis as to why those numbers looked odd.

Q. Did you hear him testify, though, that he looked into that to see if that was the cause of what was driving the differences in the numbers?

A. I heard that, yes.

Q. And did you hear him also say that he concluded that it wasn't that, but it was the sample size?

A. I heard him say that, yes.

Q. Do you trust that what he said is accurate?

A. I would say he knows the work he did better than I do. So, yeah.

Q. Okay. And -- and then you understand that he redid that study on behalf of IDFA for 2023?

A. Yes.

Q. And the numbers that he got in 2023, did that seem to fit better with what you would have expected?

A. Yeah. I mean, in terms of the relationship between butter and powder particularly, yeah.

Q. Because the delta between dry whey and nonfat dry milk is now three times difference; is that right?

A. Well, yeah. But it's -- the dry whey costs are higher, which is what I -- more what I would expect. Higher than nonfat dry milk.

Q. And so almost a $0.09 difference from 2021 to 2023; is that right?

A. I don't have the numbers in front of me, so I'll take your word for it.

THE COURT: How much more do you have left? We have been going for about an hour and a quarter, 20 minutes, something like that.

MS. HANCOCK: I have a little bit more. Do you want to take a break?

THE COURT: Yeah, let's take a break.

Let's come back at 2:51.

(Whereupon, a break was taken.)

THE COURT: Back on the record.

Your witness.

MS. HANCOCK: Thank you.

BY MS. HANCOCK:

Q. Dr. Schiek, when you look at the -- let me say it this way: How -- what percentage of accuracy would you place on your modeling?

A. That's a -- what percentage of accuracy? I'm not quite sure how to answer that or how you are defining

accuracy.

Q. Let's say it's a cheese plant in Wisconsin. What percentage of accuracy would you assign to the numbers that you have modeled in your materials to their manufacturing costs of cheese, cheddar cheese, in Wisconsin?

A. I don't know that I could put a number on that. I think, you know, as I said, we're using California cost data. We're using explanatory variables that we think impact the cost -- or are representative of cost changes in California, so these are essentially estimates of California costs. So to the effect that cheese plants in Wisconsin are influenced by the same cost pressures and cost factors that would be influencing dairy manufacturing plants in California, I would say cost increases could be related, the actual cost levels might be different.

Q. Okay. So the overall trends or percentages of growth, if you knew Wisconsin's starting point, you would be able to maybe assign that same percentage of growth to get to a more accurate number; is that a way to describe it?

A. That -- that probably would be a way of looking at it in terms of comparing Wisconsin and California. Yeah.

Q. That would get you closer to an accurate number than just assigning the model number results from California to Wisconsin; is that fair?

A. I think depending on the premise of your -- based on the premise of your question, if -- if I know upfront

that the costs are different, and I say that costs are different, but I believe they are subject to the same kind of inflationary pressures, then, yes, I would say you're -- the way you have presented it to me is accurate. But I would have to know that to begin with, and I don't know that I know that.

Q. Okay. And you didn't know it when you did your modeling either; is that right?

A. Correct.

Q. Okay. And if you -- as an economist, if you were trying to make an accurate prediction, to what decimal number would you like to go out to for accuracy purposes?

A. Yeah, I don't know who started this. I guess it was CDFA started going out to four decimal points, and so that's what we have data on. And so when we do the forecasts, they are coming out at four decimal places, too. But, in reality, you know, if you are within a half cent, I would think that's probably pretty close.

Q. Okay. So just to the tenth of a cent?

A. Yeah.

Q. Are you confident in the -- enough in the results of your modeling that you would use those numbers to set Make Allowance?

A. You know, I think if you had -- in the absence of an audited cost study, yes.

Q. Okay. Do you agree that if you had an opportunity to have an audited cost study that was mandatory, that would be a better way to set Make Allowances?

A. I think in the long run that would be a better way to set Make Allowances.

Q. Would it also be a better way to set it in the short term as well?

A. If you have it, it is better. I mean, I think what we're -- what we're running into here is that it's -- it's been many years, I've forgotten the number now, 2006 -- 2008 was when he changed it based on 2006, 2007 data. And I -- I could say with some confidence costs have changed, and I think we have heard that from processors and co-ops who have testified.

So the question is, you know, what's -- what's the risk of waiting to update what is an outdated number versus, you know, the accuracy gained that you would get by waiting for an audited number. I think that's really the question that the Department's going to be dealing with.

Q. Okay. So making an adjustment now, even if it's not accurate, is at least better than no adjustment now; is that right?

A. I -- I would say you really want to know what your best estimate of costs, current costs are, that that should be what you are aiming for. And then how you implement that, that's a policy question.

Q. Okay. And it's fair to say if we're looking on, that you agree that the best way to set them would be on an accurate number, right?

A. Yes.

Q. And -- and if we look at kind of prioritizing which one is the most accurate, the most accurate would be a mandatory audited cost survey. Would you agree?

A. I -- yes. I think that's -- that's accurate, for sure.

Q. And then in the level of priority, the next one would be an actual cost survey, such as ones that Dr. Stephenson has conducted, if you don't have a mandatory survey. Would that be fair?

A. Yeah. I think, in general, real plant data is preferable to -- to this approach in terms of --

Q. And when you say --

A. -- econometric approach --

(Court Reporter clarification.)

THE WITNESS: I think the question was, would a cost survey be preferable to an econometric model like I have estimated; is that accurate?

BY MS. HANCOCK:

Q. That is correct.

A. Okay. And I was saying, I think you would always prefer to have actual plant data from a survey as long as it is, I guess, broad enough to encompass and be representative, and then the econometric model would be something that would be employed in support of -- of the plant data.

Q. Okay. And so then if we have the mandatory audited cost survey as the number one way that we could achieve accuracy, and then a cost survey below that --

A. Uh-huh.
Q. -- such as the one that Dr. Stephenson has conducted, either in 2021 or 2023, and then your modeling would be below that; is that right?
A. In order of preference for -- for policy purposes in setting Make Allowances, yes.
Q. Okay. So would you agree with me that by adding your numbers in the modeling to Dr. Stephenson's 2023 numbers, and then taking an average of those two, that it is something less than or less valuable than just looking at his alone?
A. I think it depends on how confident you are that his numbers are representative of the current conditions in the marketplace. And, you know, I think one of the things I said I think in the study that, you know, his -- his estimate for the manufacturing costs for cheddar cheese is lower than the estimate for 2022 that we came up with in my modeling. I think all the other ones, dry whey, nonfat dry milk, butter, his estimates are all higher than what I came up with.
And, you know, I don't know, I -- I just -- I kind of track these costs through 2016. I have a -- talk to people, I don't know that, you know -- I can't say that definitively that his cost estimates in all of the commodities are -- are a better representation of where a cost level is today than -- than -- than my estimates.
Q. And that's because based on your experience in the industry, you see some anomalies in his number that don't

match up with what you would expect to see in his actual numbers; is that fair?

A. I would say some of those numbers seem a little on the high side to me, yeah.

Q. Okay.

MS. HANCOCK: That's all I have. Thank you so much, Dr. Schiek.

CROSS-EXAMINATION

BY MR. MILTNER:

Q. Good afternoon, Dr. Schiek.

A. Good afternoon, Mr. Miltner -- or should I say Squire Miltner?

Q. You can say what you like.

Shall we put some folks to sleep?

A. I think it's too late for that.

Q. I'm looking at pages 7 through 9 of your full report, Exhibit 180.

So at the bottom you have kind of a legend, and you have two asterisks means the estimated parameter or regression statistic is significant of the 5% level, and then one asterisk means the same at a 10% level.

A. Correct.

Q. And in more basic terms, what does that mean?

A. More basic is probably going to put people to sleep even faster.

So when we talk about statistical significance, the way these tests are set up, so for the regression statistic, which is I'm talking about the F, the F-stat

here that you see, so same with each equation, the -- there's a -- there's a hypothesis that's assumed, we call it the null hypothesis, and that's the model that you have just estimated has absolutely no ability to explain variations in the variable, the dependent variable that you are trying to measure, which in this case would be, let's say, labor costs.

So what significance at the 5% level means is that there is less -- if I say I'm going to reject that null hypothesis in favor of the alternative, which it does have some power to explain the variations in the -- in the dependent variable, there's less than a 5% chance I'm wrong if -- if I reject that null hypothesis. So that's -- that's what the 5% is.

And so for 10%, which is a lower -- a less rigorous statistical threshold, it's saying there is less than a 10% chance that I'm wrong in rejecting the null hypothesis.

Q. If I then look at your formulas or your equations, under the cheese manufacturing cost model, beginning with the first equation, labor cost equals an A constant --

A. Uh-huh.

Q. -- plus a B constant times the manufacturing wage, plus the C constant times labor productivity factor, plus an E constant, there are two asterisks by your B, constant, but there are no asterisks by your other factors there.

A. Correct.

Q. Does that mean that you cannot attest to the significance of those other constants?

A. So, yes. What that means is that only the parameter estimate associated with the manufacturing wage rate was statistically significant at the 5% level, and the other two were not statistically significant at the 10% level.

They may have been -- you know, if you relaxed the constraint, they may have been significant at some other level, but they are not significant at that level.

Q. Okay. So further to the right of that equation, you have your F-statistic and your adjusted R-square.

And you mentioned the F-statistic, but if you could, recap again for us what that F-statistic represents.

A. Right. So that's the regression statistic. It basically says that this equation that we have estimated, the null hypothesis associated with that equation is that it does not explain the variation in the labor cost variable. And what this statistic value of two asterisks means is it's significant at 5% level. If I reject that null hypothesis, I would -- I'm -- I have less than 5% chance of making an error by rejecting that.

Q. If you turn forward in -- in this exhibit to page 19.

And at the top half of the page, I guess -- you state it right there -- this is an ANOVA analysis of the cheese labor estimate equation, correct?

A. Correct.
Q. Where you have kind of a, I don't know, a quarter of the way down, F, 24.432, is that the F calculation, the F-statistic for this particular formula?
A. Yes.
Q. And so back on page 7 you didn't -- you didn't put the F-statistic in there, you just indicated whether it was significant at 5%, correct?
A. Correct.
Q. Does the actual number of the F-statistic have any significance?
A. Well, the way this F-statistic is constructed, the higher it is, the actual, you know, smaller your chances are of making a -- what we call type one error, rejecting the null hypothesis when it, in fact, was true.
Q. So a higher F-statistic is better --
A. Better --
Q. -- as far as being a predictive equation?
A. Correct.
Q. So back on page 7 next to that, you have the adjusted R-square?
A. Correct.
Q. And I could try to explain what I think that means, and I think I would be right, but I wouldn't do it cogently. So can you help us with the adjusted R-square?
A. Okay. So the R-square is a measure of fit of the model in terms of how much of the variation in the dependent variable -- in this case let's use the labor

cost as the example -- how much is explained by your regression model. And the R-square is around 80%.

The adjusted R-square is a way of comparing models that have different numbers of variables in them -- there are a different number of -- yeah, numbers of explanatory variables in them, so that you can always improve your R-square by adding more regressors, more explanatory variables, but you start losing efficiency, you start -- over time.

And so the adjusted R-square is a way of essentially penalizing you for the extra variables you are adding and whether they really contribute much to the explanatory power. And that's why it's kind of a better measure of fit to use when you are comparing different models than the straight R-square. So that's -- it's another measure of fit that adjusts for the number of variables that you are using to explain the -- explain variations in the dependent variable.

Q. I want to give you my understanding of what that means for the cheese manufacturing labor cost equation and let me know if you agree with it.

The adjusted R-square of .77 means that if you had an actual observation on the labor cost at a cheese plant and a predicted labor cost for that same plant, 77% of any variance is explained by the model; is that right?

A. Correct.

Q. Okay. So further down where you kind of have -- on page 7, what I have called a legend for the various

abbreviations in the equations, I want to look at the outside factors that get pulled in.

So if I start with MFG wage, you explain what that is. That's a California specific wage figure, correct?

A. Correct.

Q. And but labor productivity, lab pro, that's a national average, correct?

A. It is, yes.

Q. Similarly, natural gas, you have chosen a California specific measure of natural gas prices, correct?

A. Correct.

Q. Same for electricity, that's California specific?

A. Correct.

Q. Okay. Turning to the next page, US PPI is obviously a national figure.

A. Uh-huh.

Q. Food TFP, that's also a national figure, correct?

A. It is, correct.

Q. I think, the rest are dummies.

So it really is the labor and the energy costs that are California specific numbers in your equations, correct?

A. Correct.

Q. Okay. Here's where the No Doz would be helpful.

I want to go through the labor equation for cheese. So if I -- if I take that equation, and I have the first constant is a11, which if I look at page 9, and

Table 3, I think that that is 0.0116, correct?

A. Correct.

Q. And then if I move further in the equation, I now have b11. And if I look at Table 3, I think I'm supposed to pull 0.0049; is that correct?

A. Correct.

Q. And then that B constant will be multiplied times the manufacturing wage which you reference, correct?

A. The .0049?

Q. Yes.

A. Yes, that's correct.

Q. Okay. The next term is c11. And I think that that is a negative 0.0004.

A. Correct.

Q. And then you multiply that times lab pro, the non-farm labor productivity index, correct?

A. Correct.

Q. Okay. The next thing I have is e11. Now, your E-constants are regression error terms, and I have not been able to locate the e11 constant.

A. So e11 is not a constant. It is not a parameter. It is just the error term. So it's -- it's -- so the predicted value is everything before the error term.

Q. Okay.

A. The error term only measures the distance between the predicted value and the actual value.

Q. Okay. Very good. I promise I won't go through all of these, but let's look at utilities for nonfat dry

milk.

A. Okay.

Q. So the first constant -- I'm pulling these, again, off of Table 3 -- a32 is 0.0408, correct?

A. Yes.

Q. And then the B constant there would be 0.0008, correct?

A. Correct.

Q. And -- and the C constant is 0.0094, right?

A. Correct.

Q. Okay. Have you had a chance to review the testimony that Mike Brown is going to present on this topic?

A. I have not. I have seen a couple of pieces of it but, no, not in its entirety.

Q. I believe that he's going to testify that IDFA recommends blending Dr. Stephenson's report and your report weighted equally to set Make Allowances.

Is that your understanding of what IDFA is proposing?

A. That's my understanding, yeah.

Q. So Ms. Hancock asked you some questions about the relative costs of labor and energy in California versus the U.S. And I don't recall if she asked if you had looked at the differences in labor for the term or -- the labor costs that you specifically reference for California and how that compares to the same labor costs nationwide.

Did you examine that?

A. Earlier on in doing this work, I estimated the model -- it's not quite the same thing -- but I estimated the model using national cost numbers, just to see, does it make a big change in the parameter estimates.

Q. What did you conclude when you looked at that?

A. I concluded that, while the projected costs were lower using the national numbers, they were -- I'll use the term in the same ballpark. They were anywhere from a half a cent to maybe a cent to a cent and a half lower. They weren't an order of magnitude lower.

So that would be -- the hypothesis there would be, if you were looking at California costs that were increasing or changing at a rate that the national average costs were changing, that would be what the model would predict.

Q. Where you describe the MFG wage, you state that that is the annual average hourly earnings for California non-supervisory manufacturing workers, and so BLS lists both a median and a mean. You said average. So I assume that means you took the mean?

A. That was the mean, I'm pretty sure, yeah.

Q. Okay. So if I told you that California's rate is -- mean rate is 125% of the U.S. mean rate, does that sound reasonable to you?

A. Yeah, it wouldn't surprise me.

Q. So if we go back to the labor formula for cheese that we just walked through and I plug in California's mean rate, and then I plug it in for Michigan where

Midwest Cheese is located --

A. Uh-huh.

Q. -- that labor difference there, as I run it through, I come to about $0.016 a pound. Does that sound reasonable?

A. I can't -- I can't tell just from your description. So how much -- give me -- if you wouldn't mind, could I have the Michigan labor difference again?

Q. Well, again, I took -- I took the national mean of 18.68 and the California mean of 23.40, so it was 125% difference. I used the --

A. Yeah.

Q. -- national average versus California's.

A. Okay. So you are saying it is a cent?

Q. I'm saying that particular -- that particular piece of your equation, that just the B constant times the manufacturing wage, has an impact of about $0.016 as I ran it through.

A. Yeah. That -- that may be the case. I -- I don't know. The -- the -- I think the real comparison would be not to run that number on a -- you know, a model of the California dataset. But if you -- if you could run it on the Michigan dataset, you know, if you are using Michigan costs, you may have came up with a number that's lower or -- or if the Michigan plant costs were higher, you'd come up with a -- could come up with a number that's higher even if the wage rate was lower because they may have other costs.

But, yeah, if you are just isolating that cost and you are using California data that was estimated with California wage rates, and then you are plugging in a Michigan wage rate that's lower, yeah, I mean you could have an impact that -- that is significant.

Q. So I want to ask also then about the California utility numbers. And if I look at -- first of all, were the electric -- the electricity factors in your formulas, are they per kilowatt hour price?

A. I believe so, yeah.

Q. And then for natural gas, would that be per thousand cubic feet?

A. Right. That's correct.

Q. Would it seem reasonable to you if, on average, U.S. industrial electric rates -- let me rephrase that -- California industrial electric rates are 116% higher than the U.S. average for all other states?

A. California electric rates have increased a lot. So, yes, that wouldn't surprise me.

Q. And for natural gas, California is 84.4% higher than the national average. Does that sound reasonable?

A. That wouldn't surprise me either. And those are industrial rates.

Q. Those are industrial rates.

So if I take the EIA data for the current month -- and I recognize you did annual averages -- but if I took the current month, and it reported California's per kilowatt rate at $0.1937 and the rate for Texas at

$0.0674, does that sound reasonable to you?

A. That sounds why you are not seeing a lot of new plant investment in California, yeah. I -- I don't know if it's reasonable or not, but it -- it -- based on the numbers you are talking to me about, it doesn't seem out of the realm of possibility.

Q. If I look at Figure A-3 on page 17 of your report, utilities -- well, except for as they trailed off, but through CDFA's report, they were, for the most part, the second largest or maybe the single largest category of costs for a nonfat plant, correct?

A. Utilities are -- well, it depends on how you are -- how you are categorizing the costs. I guess, are you looking at the CDFA categories or are you looking at -- for here, I'm estimating three equations that have labor, utility, and other. And other, in all cases, is the largest component.

Q. I assumed other contains a bucket of various costs.

A. I think I listed them there. Yeah.

Q. Yeah. So if utilities are such a large component of the nonfat cost of production, would a -- would a difference of nearly 100% in the natural gas costs be meaningful when you are trying to apply California costs to a national program?

A. Yes. I mean, really what you are asking is, are costs in plants located in other states likely to be lower than costs in California; would that be fair?

Q. I think that's one way to look at it. If you want to answer that question, I'll rephrase mine.

A. I think -- I think the fact that a location with a lower utility cost could have lower plants costs of manufacture is certainly a possibility.

Q. If California's electricity costs are more than 100% higher than the rest of the states, and natural gas prices are nearly 100% higher than the rest of the states, is it appropriate to use California's costs to set a formula that applies to the entire country?

A. I think given the amount of nonfat dry milk that's manufactured in California, certainly California costs as a part of that equation is valid.

Q. And Dr. Stephenson included California plants in his study didn't he?

A. I believe he did.

Q. And according to the 2002 dairy product summary from NASS, California produces about 17.5% of the cheese in the country, correct?

A. I don't have that in front of me, so I --

Q. Does the Dairy Institute track that information?

A. We used to.

Q. Okay.

A. But not as much anymore. I haven't looked at that number in a while.

Q. Does around 20% sound right?

A. Yes.

Q. And cheddar, 6.95%?

A. That sounds right, too.
Q. Butter, about a third, 33.3% actually?
A. Yeah. That sounds about right.
Q. And nonfat, a larger percentage, 34.7% sounds reasonable?
A. It does.
Q. Dry whey, about 25%?
A. Dry whey, 25%? That sounds high.
Q. That sounds high?
A. Uh-huh.
Q. Okay. I'm sorry. You know why that's high? Because they don't report California, they report the west. So --
A. Okay. I could buy it for the west.
Q. Okay. And California's about 18% of U.S. milk production, correct?
A. That sounds about right.
Q. And so Dr. Stephenson has already weighted California -- or he's included California in his study, correct?
A. Correct.
Q. And IDFA wants to take those California numbers and have it account for a full half of it, correct?
A. Correct.
Q. On top of what's already in Dr. Stephenson's study, correct?
A. Correct.
MR. MILTNER: Thanks. That's all I have.

MR. ENGLISH: Chip English for the Milk Innovation Group, your Honor.

CROSS-EXAMINATION

BY MR. ENGLISH:

Q. Dr. Schiek, do you still have Exhibit 156 in front of you referred to by Ms. Hancock, or National Milk?

A. 156. Make sure, it is the gray cover 2016 data?

Q. Yes.

A. Yeah.

Q. So when you were asked questions, I think you looked at one paragraph on page 3, and I would like to point you to another paragraph before I actually go look at some decisions by USDA.

So on page 3, the last paragraph, could you read the second line that begins after the word "California"?

A. Yes. So this is page 3.

Q. Of 17 of Exhibit 156.

A. 156. So this is referring to the cost studies.

Q. Yes.

A. "They are the only studies in the U.S. which present the audited and detailed processing costs of butter, nonfat, dry milk, and cheddar cheese over several years."

Q. So does that refresh your recollection of whether CDFA audited the costs?

A. Well, they certainly claim they do, and I have no reason to really reject that.

Q. And part of why we're talking about California,

after all, is that in a series of hearings back in 2006 and 2007, CDFA data was presented, and USDA ended up relying on CDFA data, correct?

A. Correct.

Q. Okay. Are you aware that in the 2006 decision, which is Federal Register number 71, starting at 67467, published in November 22nd of 2006, I represent to you that USDA stated the following: "The CDFA witnesses testified that all cost survey data collected is from audited plant cost records."

Would that also refresh your recollection as to whether CDFA data was audited?

A. Yes. I would -- I don't know if it refreshes, but I would take that as CDFA attesting to the fact that they were auditing their data.

Q. And later in the decision, if USDA said, we're not going to rely on certain data because it's not audited, but the reason we are using CDFA data is because it is audited, USDA had concluded back as early as 2006 that CDFA data was audited, correct?

A. Correct.

MR. ENGLISH: Okay. I have no further questions.

THE COURT: Anyone else have cross, other than AMS?

Your witness.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. Good afternoon.

A. Good afternoon. It is nice to see you, Ms. Taylor.

Q. It's nice to see you. I bet you are surprised, too, that I might still have questions for you given the amount of questions you have already had.

A. Nothing surprises me.

Q. That's true. I am going to try to stay a little bit out of the weeds.

A. Okay.

Q. Okay? Attempt. And just have a few questions that left over from what people didn't already ask.

Your -- the data you have used in your model goes to 2016.

A. Correct.

Q. So have you -- does your model account for any changes in the makeup of California plants since that time, new plants or closed plants?

A. It does not.

Q. I know you cite for -- well, let me ask you one more question. So I don't -- do you -- can you talk about what -- how the makeup of California manufacturing plants have changed since 2016?

A. Generally, so throughout that sample period, you know, just rethinking your first question to me, I -- specifically with the cheese industry, the number of cheddar cheese plants in California declined throughout that period. We started that period with quite a number of them, and by the last study, I think there were four

plants.

Q. You are saying prior to 2016?

A. Prior to twenty -- last study in 2016, so in like 2003 there may have been eight or nine cheddar plants. I could find out if I look. But that -- so that number declined throughout that period. So the model estimates cost in a period of declining numbers of cheddar cheese plants. I mean, that's part of the background. So to some extent there is sort of a movement towards fewer plants kind of baked into the model, just because that's what was going on in -- with the data during that timeframe.

But in terms of since 2016 --

Q. Can I ask you a different question --

A. Okay.

Q. -- before you answer the post 2016? Can you speak to how plants -- other manufacturing plants would have changed during that time, butter plants, powder plants?

A. Yeah. I don't think the trend is quite as clear there because we had some -- during that sample period, we had some new plants open. And I know, you know, we had -- we had a couple of plants close and then one reopen. So, you know, there was less of sort of a linear trend in terms of consolidation in nonfat dry milk during that period, and I think butter would be the same answer as far as nonfat dry milk. And, of course, dry whey we never had a lot to begin with, so --

Q. Right. Okay. So, now, how do you think that's

changed since 2016?

A. We have had a little bit of consolidation in nonfat dry milk, in other words, I think a couple of plant have closed since that period, but it hasn't been a particularly rapid consolidation.

Butter, I probably -- you know, Rob Vandenheuvel would be able to speak to this better, but I don't know that we have seen the same rapid number of decline in butter plants.

And cheddar cheese, I think we have -- we have one plant that ceased operation last year sometime, and that was a smaller cheddar plant.

Q. I'm just wondering, since you have vast experience in California, specifically, and the California Federal Order came into existence in the end of 2018, and so that's when they went from the state pricing formulas with their Make Allowances to ours as currently exist.

And I'm just wondering if you -- I don't know, did that change in price formulas in Make Allowances perhaps have any influence in -- on investment decisions in the state? Or California Make Allowances were higher than our current Make Allowances?

A. It would be hard to tease that out. I mean, your point about higher Make Allowances, I think we adjusted Make Allowances the last -- if I'm remembering correctly, so my memory may be fuzzy on this, but I remember we adjusted Make Allowances at a hearing in 2011 that was probably based on 2010 data, and we hadn't adjusted it

since then.

As somebody -- I think Ms. Hancock pointed out, there's a host of other things going on in California that probably had a -- have a bigger impact on decisions than -- than the Make Allowance.

And, you know, in particular the cheese plant that I know that ceased production of cheese, they were located in Southern California, and part of the issue there is the diminishing milk supply in that region and the higher cost of hauling in there, which makes it tough for a manufacturing plant to compete.

Q. Okay. I'll just note this is a request for at some point when perhaps IDFA puts together your official notice list, you cite the BLS California wage rate that you used, but if you could provide us with a --

A. Data link?

Q. Yes, that would be helpful to make sure we're looking at the same thing that you are looking at.

And on that wage rate that you used, because that was just for -- oh, gosh, I forget the term you used. It wasn't dairy specific I guess.

A. Correct. It was manufacturing wage rate.

Q. Okay. And you think -- I don't -- this is -- I -- I don't know the answer to this question. I like to know my answers sometimes, but not this one.

Was that like a comparable position to what you find in dairy manufacturing plants? I mean --

A. Yeah.

Q. -- what does that encompass?
A. I don't know that it is the actual rate in those plants. But I do believe that changes in that rate, because of the competitive nature of the labor market, would be reflected in the changes in labor rates and dairy plants as well.
Q. And is the labor rate -- I know there's been some talk about it, but just try to make it a little bit clearer. That wage rate, does that, in your mind, account for efficiencies gained in labor that would also be reflective of plant investments at the time, so you need less labor to run your -- or you get more product out of your plant, maybe you invest it to your labor costs?
A. Yeah. So you're picking up with that model, you know, it's -- that's the difference between sort of an indexing approach, where you're just assuming, okay, we have got this cost factor that's going up, and so therefore, the cost associated with that factor is going to rise by the same amount.
The regression analysis, because it's regressing against the actual cost, is going to pick up those efficiencies over time. And I -- I don't know if I am answering your question.
Q. Sure.
A. If that was at least the start of the direction. Is that what you were asking?
Q. Yeah, sort of. I mean, we've heard a lot of discussion over the past few weeks about investments and

what decisions have been made to invest or not invest because of the -- attributable somewhat to some of the manufacturing -- well, to the manufacturing allowance that we currently have in the formulas. So I'm trying to see if somehow that -- whatever investments were made in California plants during that time, assuming there were some, that that's picked up in your cost estimates.

A. So it would not be picked up -- if it's happened since 2016, it would not be picked up.

Q. Okay. So does your model -- do you have the ability to calculate prediction intervals for your estimates? You gave us a number --

A. Sure.

Q. -- right, but somehow there's probably --

A. So --

Q. -- a range --

A. -- sort of a confidence interval on the forecast?

Q. Uh-huh.

A. The answer is there may be -- because of how the model is constructed, it's fairly easy to do a confidence interval on any of the individual regression models because you have got confidence intervals on each of the parameter estimates, and so you can go from there.

How you build that up to a total, I -- I would have to do a little more work to understand how to do that correctly, and I don't.

But I can tell you, you know, confidence intervals are oftentimes a function of -- you know, a function of

how much explanatory power is in the model, but also a function of the number of observations you have. So, you know, when I did my dissertation work, I had like 50 years of data, of here we have got 13, 14, 15, I don't know. So they would probably be pretty wide confidence intervals on the forecast.

Q. Okay. I know you cited in your testimony some other witnesses that have talked about their cost increases --

A. Uh-huh.

Q. -- to say that what you have -- the model has predicted is kind of within the range of what people have testified to.

Did you share your results with your member plants of Dairy Institute to see from their perspective if they -- the results are kind of what they see?

A. I have had some conversations, just -- you know, these are what the estimates are I'm coming in for; are they in the ballpark? You know, people I have asked if -- nobody said, boy, you are really way off. But, again, that's not a -- that's not a -- what's the word -- rigorous -- rigorous survey of the data. That's just from asking a few people. But, yeah, I haven't sent it out and asked for people to report back or anything like that.

Q. Okay. And you didn't get any notable feedback either then?

A. That -- that -- no.

MS. TAYLOR: Okay.

CROSS-EXAMINATION

BY MR. WILSON:

Q. Hello, Dr. Schiek. Todd Wilson, Dairy Programs.

A. Nice to see you, Mr. Wilson.

Q. Good to see you.

I'm going to read the question because it's probably better.

A. Okay.

Q. Looking at the regression results in Table 5 -- I'm sorry -- down at the bottom of page 5, not the regression table -- on the bottom of page 5 on Exhibit 180, you describe including the Producer Price Index for intermediate goods.

Since BLS publishes many different PPIs at different stages in the supply chain for different grouping of commodities, can you clarify which specific PPI you used in your analysis?

A. This would be a higher level PPI, not a specific industry PPI. So it's an overall U.S. PPI for intermediate goods.

Q. Okay. Thank you. All right.

I got one more. Sorry.

A. So could I add on to my answer for that?

Q. Absolutely.

A. So my thinking there is that dairy plants are buying inputs that aren't -- not all of which are unique to the dairy industry. You know, they are buying packaging materials. They are buying, you know, certain

ingredients, maintenance and supply, equipment for the plant. And so they are probably procuring these things, you know, from vendors or manufacturers in other parts of the country. And therefore I thought that the more general number was appropriate for -- for that kind of -- what I'm trying to represent, which is sort of the other cost materials and how those costs are changing.

Q. Yes. So when you -- can you provide the link --

A. Yes.

Q. -- official notice on that information?

Okay. One more question. On Table 3, page 9, there is a parameter with an estimate for spot electricity that's negative.

A. Yeah. Yes.

Q. Can you --

A. That's -- that was the result of the regression equation, which is not what you would expect, right?

And I think what we're -- what we found, generally, with utility cost model estimates is they had the poorest fit and, you know, behaved in -- you know, there's one where it behaved in a way that we didn't expect. I think it's a -- it's a combination of the amount of forward buying and hedging people do of costs.

I think I'm using an industrial electricity price, which a lot it would apply to a lot of plants. I do know that there are some dairy plants, some large dairy plants, that are in, for lack of a better term, metropolitan utility districts that have very different cost parameters

than the heavy industry in the rest of the state. So, you know, states -- the two big utilities are Southern California Edison and Pacific Gas and Electric, and I know there are some big dairy plants that operate in metropolitan utility districts that have very different rates.

CROSS-EXAMINATION

BY MS. TAYLOR:

Q. So for the lay listener --

A. Yeah.

Q. -- and me, who is also a lay listener, can you explain how to interpret that negative number?

A. I would -- I would basically interpret it as -- as that is the number that the model estimated as the best -- as the parameter when you include electricity that would give you the best fit. So I think it's -- it's a -- it's a consequence of probably the variables I'm using in that particular case are not really good proxies, they are not the best proxies for electricity, for, example for dairy plants in California.

Q. Okay. So we have heard testimony kind of throughout this week and last about how 2022 is -- I don't know if I want to say an outlier. We don't know what normal is anymore. But with the supply chain issues and inflation, as you have spoken to yourself, do you see those things have moderated some? Should we look at 2022 as an outlier and not necessarily want to bake that result into some Make Allowances that we would set for an

undetermined amount of time?

A. Well, we have some moderation. I think, you know, fuel prices have come down, and that's explained an awful lot of the reduction in the -- in the general headline numbers. I didn't see what the CPI was today. Maybe somebody saw that. I don't know whether it was up from last month in terms of increases but -- so -- so I don't know going forward. None of us have a great crystal ball.

Certainly inflation spiked in 2021 and 2022, and it's been coming down in '23, the rate of inflation anyway. I don't know that the price levels necessarily have been coming down, but the rate of inflation has.

The other thing I would point out -- and we used to look at this when we were at the CDFA hearings too, is that when you have gone a long time without an adjustment, there's been a shortfall in manufacturing costs relative to, you know, where the Make Allowance is for an extended period of time. And if -- if we were a little higher for a short period of time, that -- that may not be necessarily such a bad thing from a -- you know, allowing plants to get healthy and make the kind of investments they need.

I think, you know, the reality is we shouldn't -- we shouldn't be updating Make Allowances once every 15 years or whatever it is. We should have this discussion more regularly, I think, to keep things current. And, you know, that would be my solution. I don't know that I would say shy away from current costs

just because it might be a bad year. I think come back when the -- you know, some -- somebody should petition and ask for a hearing, you know, when things change and say, hey, we need to adjust this again.

Q. So speaking of inadequate Make Allowances as have been described in this hearing, can you speak about how your Dairy Institute members are coping with that? If they are so inadequate, how are they able to keep operating?

A. Well, generally, I think there are several things that can happen. If you have the ability to delay reinvestment -- I kind of look back. My -- my father and his brother grew up on a dairy farm, and I kind of looked at how they handled new equipment purchases. And the reality is if they could keep something running and keep -- you know, not have to buy the new equipment, they would do it as long as they could.

Q. Duct tape and baling wire?

A. Yeah, basically that's the analogy, right. So you -- you defer maintenance -- or you defer investment and just keep things going and hope at some point you will be able to upgrade. So that's one way to --

Q. For 15 years?

A. Yeah. Well, I don't -- I don't know for 15 years. Obviously, in California we did have some Make Allowance increases since then. But for the -- in terms of a lot of the specific strategies plants are doing in California to deal with that, I -- I don't know. We -- you know, we

just -- on cheddar, we don't have that many plants anymore. And on nonfat dry milk and butter, those are generally not members, those -- I don't have many of those in my membership.

Q. Okay.

MS. TAYLOR: I think that's it from AMS. Thank you.

THE WITNESS: Okay. Yep.

THE COURT: Redirect.

REDIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Just a few follow-ups.

On this question of whether 2022 was a year of relatively high inflation, okay.

A. Uh-huh.

Q. I mean, whether it was relatively high or not, the costs are what the costs were in 2022, correct?

A. Correct.

Q. I mean, and Federal Orders don't adjust based upon projections of future inflation, correct?

A. That's not been my understanding that they have ever done that.

Q. I mean, in other words, in order for the costs of manufacture to be less than as surveyed in 2022, you would have to actually have deflation, correct?

A. You would have to have deflation in those cost factors, right.

Q. Okay. So I mean, even though general inflation

may have dropped somewhat in 2023 compared to 2022, generally things are still more expensive in 2023 than they were in 2022, correct?

A. Yeah. I would say that's correct. And, you know, when you look at the trend lines, we generally don't see things like labor go backwards in terms of cost.

Q. Okay.

A. May get more efficiencies in a plant, but the trend line on labor cost is pretty consistently upward.

Q. So I want to understand a little bit more about the trend line. So you were -- you were -- when you're looking at the California data starting in twenty -- strike that.

When you are looking at the California data that starts in 2002, which was your first year, through 2016, your -- the costs that the California Department of Food and Agriculture is calculating are based upon how many pounds of product you produced at what cost, correct?

A. Correct.

Q. That's how you get to a cost per pound, correct?

A. Correct.

Q. And if you have engaged in efficiencies during that 16-year period, then by 2016 you're going to have lower costs based upon those efficiencies. You may have higher costs based upon other things, but to the extent that there were efficiencies, you have picked that up, correct?

A. Yeah, I have.

Q. And so when you then use that data to project forward from 2016 to 2022, which is what you did, are you -- by using the 2002 through 2016 data to create your formulas, are you capturing that phenomenon?

A. So I think you are capturing the phenomenon. The question really comes is, you are picking up a rate of gain in efficiency, right, as part of -- during the sample period. So the only thing you wouldn't be picking up is if outside the sample period there was a change in that gain.

Q. But let's just be clear about that. As long as the trend in efficiency from 2016 through 2022 has been the same as it was from 2002 to 2016, you are going to have captured that, correct?

A. That would be accounted for, yes.

Q. It would only be if there were some substantially different kind of change in efficiency since 2016 that you would have missed that; is that fair?

A. I would say yes.

Q. And are you aware of some vast change that's happened since 2016 that is hugely different than the trend that existed from 2002 to 2016?

A. I am not.

Q. Now, you were asked some questions about -- well -- and you were asked a number of questions about whether we should be using California data to set minimum milk prices. I mean, that's -- that's a bridge that USDA has crossed two or three times already, correct?

A. Yes. They have already used California data in constructing the Make Allowances.

Q. Okay. And we'll hear some more about that history tomorrow. I won't try to recite it -- potentially tomorrow. We'll see how fast we move.

But the other topic I want to just cover quickly is, in terms of Dr. Stephenson's cost survey, there was some questions about, you know, more data is better than less data and, you know, sample size can make a difference and things of that nature, right? Correct?

A. Correct.

Q. All right. We'll have this exact testimony when Mr. -- when Mr. Brown testifies, but I just want you to assume these calculations are correct.

But let me just start by saying did you -- did you -- were you here when I asked Dr. Stephenson how one would go about calculating the percentage of total cheddar cheese, whey, nonfat dry milk, and butter production in the United States, how one can calculate what percentage of that is covered by his survey?

A. I'm not positive I was, actually.

Q. Then no reason to rehearse that.

Just take these numbers as what those -- that information establishes. This will be the subject of testimony later.

So for nonfat dry milk, assume with me that the plants that participated in the survey produce 91.2% of all nonfat dry milk produced in the country in 2022.

Okay? Do you have -- I mean, what would that mean to you as an economist as to the representativeness of the sample data?

A. That would be -- I would assume that would be very highly representative of the population as a whole.

Q. I mean, there's -- there's a survey and there's a census; is that a phrase people use in the --

A. Yeah.

Q. -- economic world? A census is where you cover everything, I guess?

A. Yes.

Q. I mean, 91% is sort of getting into census territory, isn't it?

A. It is.

Q. And let's take butter. Assume that Dr. Stephenson's 2022 cost survey included plants that collectively produced 80.1% of all the butter produced in the United States in 2022.

Now, it's not as high as 91, but -- but what would be your reaction to that in terms of the likelihood that this was reflective of the actual costs of producing butter in 2022?

A. I would assume it was pretty reflective.

Q. And for cheddar cheese and whey, the numbers are somewhat lower. Cheddar cheese is 55.6%. Whey is 50.8%. What is your general view as to those levels of the percentage of total production that is reflected in the plants that participated in the survey?

A. I think I would also expect those to be pretty representative of the population as a whole.

MR. ROSENBAUM: Your Honor, at this point I would just simply like to move my exhibits into evidence, which are Exhibits 180 through 195.

THE COURT: Mr. Miltner has --

MR. MILTNER: No objection. Just additional questions.

THE COURT: Let's -- well, okay. I'll tell you what, let's take a break. It's been quite a while.

Any objections to any of this exhibits coming into evidence?

Seeing none. Let me get out my list.

Okay. With that, Exhibit Numbers marked for identification as 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, and 195, are all entered into the record of this proceeding.

(Thereafter, Exhibit Numbers 180 through 195 were received into evidence.)

THE COURT: Okay. Let's -- ten minutes. It is late in the day, ten minutes. Let's come back at 4:15, and Mr. Miltner, it will be your turn.

(Whereupon, a break was taken.)

THE COURT: Back on the record.

I understand that Mr. Miltner has waived any further questions of this witness. So unless there are objections from someone, we'll let this witness step down from the stand.

Thank you, Doctor.

MR. ROSENBAUM: Your Honor, we would call as our next witness, Mr. James DeJong.

THE COURT: Raise your right hand.

JAMES DEJONG,

Being first duly sworn, was examined and testified as follows:

THE COURT: Mr. Rosenbaum, your witness.

DIRECT EXAMINATION

BY MR. ROSENBAUM:

Q. Good afternoon, Mr. DeJong. Can you please state your full name for the record and provide your mailing address, your business mailing address?

A. Sure. My name is James DeJong. And my mailing address for work is 121 4th Avenue South, Twin Falls, Idaho, 83301.

Q. And, Mr. DeJong, have you prepared two different written testimonies that you are going to deliver today?

A. Yes, or as much as I can.

MR. ROSENBAUM: Your Honor, I -- the first of them is labeled as IDFA Exhibit 22, and we would ask that that be marked with the next Hearing Exhibit number.

THE COURT: IDFA Exhibit 22 is marked for identification Exhibit 196.

(Thereafter, Exhibit Number 196 was marked for identification.)

MR. ROSENBAUM: And, your Honor, IDFA Exhibit 41, we would ask that to be marked as Hearing Exhibit 197.

THE COURT: So marked.

(Thereafter, Exhibit Number 197 was marked for identification.)

BY MR. ROSENBAUM:

Q. Mr. DeJong, can you please read Hearing Exhibit 196?

A. My name is James DeJong, and I am currently the Senior Director of Dairy Economics, Risk Management, and Sales Planning for Glanbia Nutritionals (GN) for short, whom I am representing today. I work out of GN's corporate office at 121 4th Ave South, Twin Falls, Idaho 83301.

I have worked for GN the last five years. My main responsibilities include market and industry intelligence, milk pricing analysis, hedging dairy commodity price risk, and balancing our internal supply and demand for whey proteins. Prior to that, I worked for Hilmar Cheese for four and one-half years and at Rabobank for three years.

At Hilmar Cheese, I worked as their Dairy Economist, dairy commodity and energy price risk manager, and also as their Strategic Planner. For Rabobank, I worked for their Food and Agricultural Research and Advisory division as an Agricultural Analyst. There I specialized in dairy industry economics, general California agricultural economics, U.S. row crops, and economics of North American forest products. I have a bachelor's degree in social science and a master's degree in public administration from California State University

Stanislaus.

As to the background of our company, GN is part of Glanbia PLC, a global nutrition company based in Ireland. Glanbia PLC includes GN (business to business sales only), Glanbia Performance Nutrition (business to consumer brands such as Optimum Nutrition), and our Joint Ventures (which include Southwest Cheese and MW cheese/whey plants). You can see our basic company organization below.

I am here to represent GN and our 50% ownership interest in the two Joint Venture cheese/whey plants. Our partners in our Joint Venture plants, Dairy Farmers of America and Select Milk Producers, are not represented in this testimony.

GN is a diversified nutrition solutions company that specializes in custom pre-mix solutions, bioactive ingredients, flavors, micronutrients, plant-based nutrition solutions, bakery ingredients, as well as American-style cheeses and high concentrate whey proteins.

Specifically, to the dairy segment of our business, GN fully owns four dairy plants in Idaho that process a combined 12 million milk pounds a day and turn that milk into barrel cheese, block cheese, high concentrate whey proteins, proprietary protein blends and lactose. Our Idaho plants operate outside the Federal Milk Marketing Order (FMMO) system.

Our Joint Venture plants in New Mexico (FMMO 126) and Michigan (FMMO 33) process a combined 22 million pounds of milk per day and turn it into American-style

block cheese and high concentrate whey proteins. Our combined output between our fully-owned and Joint Venture plants makes us the largest American-style cheese manufacturer and the largest whey-based nutritional solutions provider in the US.

Further, although not all our plants fall within the FMMO marketing areas, we still have a substantial stake in the maintenance and proper functioning of the FMMO system. This is especially true in the case of the Class III milk price, on which my testimony will focus.

Our plants make the type of cheddar cheese represented in the Class III formula, compete locally and nationally with other dairy manufacturers that rely on the FMMO pricing system, and ourselves and our patron milk suppliers utilize the risk management tools that are linked to the FMMO pricing system.

Headline: Proposals 8 and 9: Make Allowances proposed by Wisconsin Cheese Makers Association and International Dairy Foods Association.

GN supports the Make Allowance proposals from Wisconsin Cheese Makers Association (WCMA) and the International Dairy Foods Association (IDFA). The WMCA (sic) and IDFA proposals use an average of the Dr. Schiek study (which uses the 2016 California Department of Agriculture audited manufacturing cost study adjusted with inflation indexes) and the last manufacturing cost survey from Dr. Mark Stephenson using 2022 plant survey data.

Why the WMCA/IDFA Make Allowance proposal should

be adopted:

We believe the data from these studies should be used because there is a higher degree of transparency, and USDA has precedent for using similar studies in past FMMO decisions. IDFA's testimony discusses past USDA precedent for using high quality and data driven research to establish Make Allowances.

Further, as the largest processor of cheddar cheese in the US, all five of our cheddar plants participated in the last 2022 Stephenson cost study, which includes our Joint Venture plants as well.

GN supports the $0.0015 per pound marketing allowance cost addition:

GN supports the $0.0015 per pound marketing cost addition to the WMCA and IDFA Make Allowance proposal. On one hand, marketing costs have risen like other costs due to inflation. On the other hand, one could also argue that industry consolidation has reduced the amount of resources needed to sell cheese domestically. In balance, we ask that the $0.0015 per pound marketing cost be included in the final Make Allowance as it was in the previous FMMO Make Allowance decision.

Why Make Allowances need to be maintained:

GN believes FMMO Make Allowances must be maintained to reflect reality. The FMMO system relies on these Make Allowances to set minimum pricing and distribute pool revenues, while the industry uses these prices to make investment decisions, set the pricing of

milk, and are heavily used in CME and USDA risk management tools.

However, when these Make Allowances are not maintained, as they haven't been in 15 years, we can expect to see market distortions and further real-world variances versus the USDA announced Class prices.

Looking at USDA published data, we can see declining mailbox milk prices versus uniform milk prices at test (Figures 2 through 5). The analysis in these figures takes the USDA mailbox milk prices from four states/regions, then subtracts the order's uniform price at the order's weighted average milk components. The purpose of the analysis is to illustrate how actual producer milk prices have changed over time versus the regulated price at real world milk components.

For example, in Wisconsin the mailbox milk price from October 2008 to September 2010 averaged $14.42 per hundredweight, while the uniform milk price at test (using the $1.70 zone PPD) averaged $13.54 per hundredweight. This equals an $0.88 per hundredweight positive variance versus the uniform price at test.

However, from May 2021 to April 2023 (last available data), the Wisconsin mailbox price averaged $21.78 per hundredweight while the uniform milk price at test (again using the $1.70 zone PPD) averaged $22.21 per hundredweight. This equals a $0.43 per hundredweight negative variance versus the uniform price at test and a $1.31 per hundredweight negative total swing over this

period.

What this data shows is that there is a "bumping up" of the mailbox price against FMMO uniform prices; in other words, the market is trying to take the actual pay price below the FMMO minimum price. That is a sign that the minimum price is too high, and that the price is too high in large part because of inaccurate Make Allowances.

While other factors, like higher milk hauling costs, changes in checkoff program amounts, or variances in milk components will cause noise in the analysis, the trendline is unmistakable.

Further, the other three regions analyzed (Figures 3 through 5) that are inside FMMOs show the same pattern of collapsing milk premiums versus the FMMO uniform prices. We believe a good portion of this collapse is attributed to extremely outdated Make Allowances. There is a summary of the total swing in mailbox prices versus the uniform price at test for the four areas in the Appendix section.

Milk premiums take over when FMMO milk prices are below competitive levels:

We believe there is more industry risk when regulated milk prices are set too high versus too low. When the FMMO milk prices are set too low in a milk shed, historically speaking, market premiums over the Class III prices take hold.

Looking at Figures 3 through 5 again, in the early years following the 2008 Make Allowance change, mailbox

prices were relatively strong versus the uniform prices at test in multiple regions. In this case, dairy processors had extra margin over the FMMO Class prices that was then diverted to pay for premiums.

Given milk cooperatives control about 85% of all the milk in the U.S., this places them in an extremely strong position to bargain for premiums above the FMMO Class prices, providing enough value is being generated from dairy products in that milk shed.

If Make Allowances were set too high in some milk sheds, market principles will take over and premiums will again become common.

Importance of Make Allowances for pooling dollar distribution:

In the case of FMMO pooling revenue distribution, when the Class III and IV Make Allowances are not reflective of reality, a situation can be created where pool revenues are not distributed in a fair or economical justifiable manner.

For example, if the Class III Make Allowances were too low (creating an artificially high Class III price), but set too high for Class IV (creating an artificially low Class IV price), Class IV milk handlers would have an unfair advantage because pool dollars flow to the lowest Class value of milk.

In this case, the Class IV handlers could be financially strong while also pulling in extra pool revenue, while the Class III milk handler could be

struggling while not getting any pool revenue (or worse, paying into the pool). The opposite situation could exist between Class III and IV depending in which direction the Make Allowances were distorted.

In the end, the point proves USDA needs to maintain accurate Make Allowances to ensure the FMMO pooling system is functioning equitably for producers. Failing to correct Make Allowances with the best available data, or delaying their implementation, will create disorderly marketing.

Impact of higher manufacturing costs on GN:

GN's costs have gone up considerably since the Class III Make Allowances were last changed in 2008. Our Twin Falls, Idaho plant, which processes about 2.5 million milk pounds per day, is our best plant to compare costs over time since it only makes American-style cheese (mostly cheddar), does not dry any whey, and has been minimally changed over the years. Our other plants have seen major expansions or whey processing investments over the years that make them more difficult to compare versus 2008.

For our Twin Falls, Idaho plant from 2008 to 2022, we have seen some costs like energy only go up slightly (lower natural gas cost combined with energy efficiency projects), items like direct labor and packaging go up about 30%, and some items have gone up considerably more, like plant insurance, which was up over 70%. Overall, we have seen total costs from 2008 to 2022 increase at a

similar rate as reflected in the Stephenson and Schiek cost studies.

Additionally, we have also seen higher costs arise on the regulatory and sustainability front. For example, regulatory costs related to the Food Safety Modernization Act have produced massive increases in testing and analysis requirements.

Sustainability-related costs have also skyrocketed. We have invested in more sustainable packaging, plant upgrades that reduce carbon output and waste, $2.5 million per unit water polishers that allow water to be reused many times over (often multiple polishers are required per plant), and investment in personnel who monitor dairies and enforce on-farm sustainability requirements. It is extremely difficult to extract market premiums for our regulatory and sustainability efforts. It is often looked at as the cost of doing business today.

Many of our 2023 costs will be even higher than 2022 given the persistent inflation in the broader economy. That includes items like labor, where we see fierce competition for workers with other manufacturers, but also the cost to replace dairy processing equipment.

We estimate the cost to build the 8 million milk pound per day MWC cheese and whey plant with our Joint Venture Partners, which was completed in late 2019 and early 2020, would have gone from about $470 million originally to about $600 to $700 million if it was built

today. If $650 million is used as the midpoint, this is a 38% increase in just a few years. This increase in plant equipment costs is reflected in things like replacement silos, electric motors, water polishers, various electrical equipment, and countless other parts that keep a cheese plant running.

GN fights to keep manufacturing costs low:

While our manufacturing costs have undoubtably increased over the years, we also go to extreme lengths to try to keep costs as low as possible. This includes negotiating with vendors and various suppliers to get the most competitive pricing, while also investing heavily in plant equipment and technology to control costs.

For example, since the last Make Allowance adjustment in 2008, we have spent countless millions of dollars on projects such as recovering biogas from lost milk components in wastewater, heat exchange systems that take cold water from the milk and use it to cool other systems in the plant, automation projects that reduce labor costs, and right-sizing of equipment (for example, doing analysis to determine the minimum pump size needed). Further, our newest Joint Venture Plant, MWC in Michigan, incorporates a lot of the latest efficiency learnings into its design.

New cheese plant investors working around regulated system:

Cheese processing growth outside of FMMO regulation is creating additional cheese capacity that

competes directly with manufacturers regulated under Federal Orders. These plants have been able to attract the milk needed at prices outside the FMMO minimums, making it harder for many regulated plants to compete for cheese sales at the price that generates margins sufficient to pay the regulated price. This can contribute to disorderly marketing where pooled plants would be at a financial disadvantage to those who don't pool or operate outside the system.

Cheese manufacturers cannot raise prices to recover losses:

For most industries, raising prices is one of the most common ways to offset higher costs. However, raising prices for dairy products that are reported in the NDPSR survey creates a feedback loop. For example, if over the course of a few years cheddar cheese manufacturers raised their overages versus the CME cheese price by $0.01 per pound, this would then be fed back into the Class III protein price and increase the price of milk commensurately. In this case the manufacturer has not gained anything, but nonetheless must still increase their overage over the CME spot market or risk falling behind the NDPSR price in Class III.

Without Make Allowance increases, the only way for a manufacturer of NDPSR reported products to recover higher manufacturing costs is to pursue ruthless efficiency, look for opportunities outside the NDPSR reported products, look for escape valves out of the

Class III price, invest outside the FMMO regulated dairy industry, or invest outside of dairy.

Moving on to Proposal 7: Make Allowances proposed by National Milk Producers Federation.

GN supports the Make Allowance proposal brought forth by Wisconsin Cheese Makers Association and the International Dairy Foods Association because it is well-supported by studies (studies which I understand were shared before the start of this hearing).

In contrast, the National Milk Producers Federation (NMPF) proposal lacks transparency. While NMPF clearly acknowledges the need for updated Make Allowances in their petition, they offer no methodology to their approach other than to say their, "…Make Allowance increases represent a fair balance between the producer impact of higher Make Allowances and the processor impact of Make Allowances."

This statement, and similar ones later, imply they are asking USDA to ignore a scientific approach to setting minimum FMMO minimum prices and instead use what appears to be a politically negotiated number.

Since the Class III and IV minimum milk pricing series started in the year 2000, USDA has relied on empirical studies to set Make Allowances. Specifically, they have relied on audited manufacturing cost studies from the California Department of Agriculture (CDFA) and non-audited studies, which are similar to Dr. Stephenson’s recent manufacturing cost studies.

Furthermore, the Make Allowances proposed by NMPF is even lower than from the last available audited CDFA study from 2016 for cheese ($0.24 per pound proposed versus $0.2454 per pound in CDFA 2016). Since 2016, we have nearly seven years of cheese manufacturing cost inflation that has not been accounted for.

To conclude this topic, we urge USDA to adopt the data driven approach to Make Allowance estimates as proposed by WMCA and IDFA.

Proposal 3: Elimination of cheddar cheese 500-pound barrels from protein price.

GN opposes the elimination of 500-pound barrels from the protein price and maintains that the status quo is a better system. While we sympathize with the view that the unstable relationship between block and barrel prices in Class III have caused a variety of problems for the industry, removing the price series from Class III protein would create other, even greater problems.

First, moving Class III to a 100% block weighting would greatly complicate milk pricing for manufacturers that make barrel cheese. Barrels produced in the U.S. are almost always sold based on the CME spot barrel price, while Proposal 3 would essentially disconnect Class III milk pricing from the CME barrel (Figure 1).

The resulting disconnect between revenue and the Class III milk price could drastically increase margin volatility and ability to compete for milk – even for barrel manufacturers outside the FMMOs.

Our barrel plant in Gooding, Idaho, which is outside the FMMO system, frequently uses a basis to Class III to buy/sell milk for plant balancing purposes, while most milk handlers and dairy farmers also use Class III as a competitive benchmark in Idaho.

The removal of barrels from the protein price would essentially put barrel manufacturers and their milk suppliers on an island and disconnected from the Class III price surface. This would be a major strategic risk for our Idaho business, which produces a lot of barrel cheese.

While we realize the unpredictable relationship between block and barrel prices in Class III has created challenges in the industry, removing barrels from the protein formula will create more significant industry-wide challenges.

If this issue is going to be further explored, we believe it should be done outside the FMMO system. For example, there has been a discussion in the industry about eliminating the CME barrel market. Such a solution would negate the need to remove barrels from the NDPSR since barrels would likely become a reflection of the block market.

Proposal 4: Addition of 640-pound cheddar cheese blocks to protein price.

GN opposes the addition of the 640-pound blocks of cheese into the protein price. The first reason we oppose it is because we believe it will not add new information to the survey. In our experience, 640-pound cheddar

blocks are virtually always priced off a basis to the CME block cheddar price, so I would expect any NDPSR 640-pound cheddar survey to track virtually perfectly with the current NDPSR 40-pound block cheddar price.

The second reason we oppose adding 640-pound blocks to the Class III price is the risk CME would add a 640-pound cheddar spot market, much like the current CME cheddar block and barrel spot markets. All NDPSR dairy markets currently have a corresponding CME spot market, so it is not a stretch to assume CME would also add a 640-pound blocks.

The problem with a 640-pound CME block market is the fact there is a smaller pool of buyers and sellers versus the more liquid 40-pound block market on the CME. A small number of buyers and sellers could more easily sway a CME 640-pound block market in ways that are not helpful to the larger industry or dairy producers linked to Class III.

Basically, 640-pound blocks on the CME spot market could become "barrels 2.0" in the Class III price with unpredictable and volatile relationships to the current 40-pound block price, which would then feed into the Class III protein formula. In future hearings, petitioners could be asking to take out 640-pound blocks from the Class III protein price for the same reasons we are discussing taking out barrels today.

In summary, we would ask USDA to reject Proposal 4.

Proposal 6: Addition of mozzarella to the protein price.

GN opposes the proposal to add mozzarella to the Class III protein price for several reasons. First, the mozzarella price would be difficult to incorporate into the Class III protein price formula. Mozzarella has very different fat, solids-nonfat, and moisture levels compared to a very standard cheddar cheese, which is the current foundation of the Class III protein formula.

To integrate mozzarella into the protein price would require a separate and unique protein formula that is weighted into the current cheddar-based protein formula. Depending on the weightings of cheddar versus mozzarella in a new NDPSR price survey, the protein formula would be constantly changing.

Second, mozzarella has many different specifications, some of which are made to order for specific customers. Unless one specification was identified as accurate to use in the protein formula, even more protein formulas would be needed to account for the different product compositions. In this case, USDA would need to survey a broad spectrum of the mozzarella price surface and weight many different protein formulas, that fluctuate with surveyed weightings, to get an accurate price. Chaos would ensue.

In addition, for the current Class III and IV Make Allowances from the 2007 decision, the CDFA Make Allowances data sets and the 2019 and 2022 Stephenson

studies only use cheddar cheese in their analysis. A new robust cost study would need to be created for mozzarella and its many variations before it could be integrated into a new Class III protein price formula. This would be very challenging from a time perspective to integrate into the Final Decision since the petitioners have presented no such study.

Further, the latest cheddar Make Allowance data sets have a certain level of history and trust built into them which makes them easier to sense check. A new mozzarella study would probably need to be audited, like the past CDFA cheddar studies, to create some level of confidence in the industry.

Lastly, the petitioners imply there are lavish profits associated with the production and sale of mozzarella. Specifically, they point to a competitive USDA bid for consumer packaged mozzarella string cheese, which was awarded at $3.56 to $3.89 per pound as evidence of excess profits.

The first issue is that this was a solicitation for packaged consumer product, not for FOB bulk wholesale product, as is collected through the NDPSR for milk pricing. As we know, there can be large price differences between bulk commodity wholesale products and consumer packaged products.

The second issue is that, upon searching for generic brand mozzarella string cheese online for pickup at a local Kroger, at the time of this writing, the price

was $4.49 per 12 ounce package ($5.99 per pound). USDA appears to have gotten a bargain.

Third, cheese makers are smart for the most part, so if there were extreme profits associated with mozzarella production, huge amounts of investment would follow. Along these lines, there are already cheese makers with plants that can flex production between cheddar and mozzarella to maximize profits.

Based on our experience watching markets, these manufacturers do flex their production based on expected returns. Overall, mozzarella does not appear to be as lucrative as the petitioners claim and adding it into the Class III protein price would create chaos.

We ask USDA to reject this proposal.

Proposals 10 and 11: Increase butterfat recovery in Class III to 93% and eliminate Class III farm-to-plant shrink.

GN opposes the proposed increase in butterfat recovery and elimination of farm-to-plant shrink. We support the status quo until audited plant cost studies can be completed that show real world yields, shrink, and dairy solids recovery. This issue is very complex with broad ranges for fat recovery in the industry based on plant age and processing techniques.

While in our experience many modern plants can achieve 93% cheddar fat recovery (as the petitioner contends) and probably see relatively low farm-to-plant shrink (but not 0%), we believe the proposals only focus

on price-enhancing aspects of the Class III formula while ignoring the parts that overvalue milk within Class III.

For example, the current Class III formula incorrectly assumes all excess fat from the cheese making process is recovered. Specifically, at 2.9915% protein and 3.5% fat (standard Class III test), the current formula stipulates 90% of fat goes towards cheese making, with the remaining 10% being recovered as sweet cream, which is valued using the NDPSR Grade AA butter price. The 90% cheese fat recovery plus the 10% sweet cream fat recovery add to 100% recovery.

The first problem here is that there is no such thing as a lossless manufacturing system. All plants lose milk solids, which in our case go into wastewater (and often recovered as biogas). While we do not measure farm-to-plant losses, for simplicity, we do measure total losses from farm through our entire manufacturing system, primarily through the measurement of milk solids in our wastewater.

Even with highly efficient plant equipment and mostly full milk tanker loads, in our experience modern cheese plants are expected to lose about 1.5% of the purchased milk solids.

Specifically for fat, about 1.5% of farm test fat ends up in wastewater primarily because of equipment clean-outs and the milk ultrafiltration process prior to entering the vat. This lost fat is completely unmarketable. To quantify the impact to Class III at

standard components (2.9915% protein, 3.5% fat), using $2.3475 per pound butter (the same ten-year markets as used in the petitioner's analysis), and the current Make Allowance and butter yield factors, this loss would equal $0.14 per hundredweight of milk (see Figure 6).

The second problem is that the Class III formula values the remaining 10% of the fat not going into cheese (which is called whey cream) using the NDPSR Grade AA butter price. Per USDA regulations, butter with a whey flavor would be assigned as Grade B butter. As such, we see about 20% discounts or more for whey fat versus the Grade A sweet cream due to its limited marketability. This discrepancy can easily overvalue Class III fat another $0.17 per hundredweight (see Figure 6).

Further, included in Figure 7 is an algebraically simplified version of the current Class III protein price and fat value explanation that may make this topic easier to understand.

In summary, we urge USDA to reject Proposals 10 and 11 regarding cheese fat retention and farm-to-plant shrink. The confounding factors identified above would decrease Class III by a combined $0.31 per hundredweight versus the $0.12 per hundredweight increase Proposals 10 and 11 would bring (using the petitioner's ten-year average market analysis).

Given the vast complexity of these issues, differences in plant equipment and operations, and the fact critical parts of the Class III formula overvalue

milk, we should wait for a USDA audited cost study to be completed so we can accurately measure real world yield factors across a variety of plants.

Q. I somewhat hate to ask you to do this, but could you please turn to your other exhibit, Hearing Exhibit 197, and please read that into the record. It is only three pages, so hopefully not too hard to do that as well.

You don't have to introduce yourself.

A. Thank you. Thank you.

USDA should not delay FMMO reform due to risk management.

NMPF and IDFA agree that timely increases in Make Allowance are needed:

Petitions and testimony coming from both the National Milk Producers Federation (NMPF) coalition and the International Dairy Foods Association (IDFA) coalition have made it abundantly clear that:

(1) Outdated Make Allowances are a source of disorderly marketing;

(2) There is an urgent need for reform.

Specifically, NMPF states in their petition that, "There are consequences to setting Make Allowances too low relative to the actual cost of manufacturing under a system of PPFs. Inadequate Make Allowances challenge manufacturing operations' abilities to pay minimum announced milk prices and still operate their facilities at a reasonable rate of return. This discourages the

plant investment needed to provide market demand on a daily, seasonal, and annual basis."

Further, NMPF quotes USDA in its 1999 Final Decision on FMMO reform in saying, "The importance of using minimum prices that are market-clearing for milk used to make cheese and butter/nonfat dry milk cannot be overstated. The prices for milk used in these products must reflect supply and demand and must not exceed a level that would require handlers to pay more for milk than needed to clear the market and make a profit."

Dairy cooperative members have also spoken to the need for urgent action. Rob Vandenheuvel of CDI, in his written testimony, noted, "The issue of establishing appropriate manufacturing cost allowances, hereafter Make Allowances, in the Federal Order formulas is of critical importance to CDI…"

He further noted, "…the immediate adjustments reflected in Proposal Number 7 in this hearing process are also a critical need for the industry. The risk of inaction or delayed action is simply too great to put the issue off any further."

Other witnesses, such as Karl Rasch of Michigan Milk Producers Association in his written testimony, also acknowledged the need for "urgent" action.

USDA has been telegraphing for years reform could be coming.

USDA has changed FMMO regulation and pricing formulas multiple times over the decades. With USDA

commissioning the 2021 Stephenson Cost Study, which collection efforts began in earnest in 2020, should have clued in market participants that change could be coming.

Further, the existence of this hearing, and a likely Final Decision roughly not expected until late 2024, should act as another indicator for market participants that risk factors are changing.

Stakeholders acknowledge this. In the Chicago Mercantile Exchanges (CME) last annual Form 10-K filing, which provides a comprehensive view of a publicly traded business financial condition, they specifically acknowledge regulatory change is a risk for their business model.

CME crush traders/arbitrage traders will adjust their models to deal with Class III/IV change risk. So called "crush traders" or "arbitrage traders" will often take short or long positions in cheese, whey, butter, NFDM, Class III milk, and Class IV milk derivatives to profit off the mathematical relationships.

For example, if the combination of selling $1.21 NFDM futures and $2.20 butter futures created an implied Class IV futures price of $17.47 per hundredweight, but the Class IV futures could be bought at $17.35 per hundredweight, an arbitrage trader could execute these available derivatives to lock in a $0.12 per hundredweight profit. Whether the market goes up or down, their margin is secure as long as the milk formula remains constant. The same principles apply to Class III and its market

components.

If, for example, Make Allowances were to change, the relationship between the market prices and the milk prices would also change. In this case, the arbitrage traders would change their buy/sell formulas to reflect the IDFA or NMPF Make Allowance changes for the beginning of 2025, or near that time period.

The Make Allowances they would choose in their models (IDFA vs. NMPF) would depend on what gave them the larger margin cushion depending on what side of the trade they were on.

Given the Make Allowances proposed by IDFA 2025 and the NMPF only differ by $0.19 per hundredweight for Class III milk and $0.15 per hundredweight for Class IV milk, this should give arbitrage traders a reasonable level of confidence to adjust their risk models accordingly. While USDA could technically set Make Allowances substantially outside what the major industry groups are petitioning for, the chances seem low.

The dairy industry can hedge with individual commodities, not just Class III and IV milk derivatives.

In a worst case where dairy producers, for example, were having a hard time finding liquidity to sell Class III or IV milk futures or options due to lack of arbitrage trader's liquidity, they could also hedge with individual commodity prices directly.

In fact, GN's Idaho direct ship producers typically hedge directly by selling CME CSC cheese futures

(settles to NDPSR cheese price). Given the cheese price is typically the vast majority of their milk pay price, the hedges are effective. This allows them to correlate their mailbox price to the CME derivative regardless of Make Allowance changes. Producers in different orders can hedge with more NFDM, butter, or dry whey to reflect their mailbox milk price.

Figures 1 through 3 show the USDA mailbox milk price correlations for risk management for individual dairy commodities versus hedging the Class III and IV milk prices. The analysis shows that effective hedges can be created using only the commodity futures/options. Risk management brokers or the producer's milk handler can easily provide guidance on appropriate weightings and volumes of the commodities the dairies should hedge with.

CME makes money by transaction counts, is sensitive to needs of arbitrage trading community.

One reason CME's testimony is sensitive to "liquidity providers" is due to the amount of fee revenue they generate. In their last Form 10-K filing, CME states, "Our revenue is substantially derived from fees for transactions executed and cleared in our markets."

Given that crush traders are taking multiple parts of dairy markets and figuratively "crushing" them together requires multiple transactions to accomplish. For example, crushing a Class III milk contract could involve buying a Class III milk contract and selling cheese, dry whey, and butter derivatives at the same time. This is

four transactions the CME benefits from. For dairy farmers managing their risk using only cheese derivatives, or maybe only one or two additional commodities, there are less transactions involved.

While this section of the testimony is not meant to say CME is nefarious for charging for their valuable services, or that CME market liquidity is not very important for the industry, it is meant to point out their interests are not always aligned with the broader dairy industry.

Conclusion: We urge USDA to not delay reform implementation due to risk management concerns. The industry knows change is coming, within a reasonable level of certainty in scope, and dairy producers should still be able to hedge. The CME's concerns about liquidity impacts are worth noting, but their concerns are not necessarily rooted in the health of the broader industry.

If USDA ultimately decides to delay the implementation, GN would support skipping the IDFA proposed four-year phase-in approach to Make Allowance reform and instead move straight to the maximum 2028 proposed levels.

That concludes my testimony.

MR. ROSENBAUM: Your Honor, I may have one or two questions, but it's -- we're after five o'clock, so I would suggest we break for the day and start tomorrow morning.

THE COURT: Yeah, I think so. We'll start with

you with this witness and then have cross-examination.
Let's go off the record.
(Whereupon, the proceedings were concluded.)
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STATE OF CALIFORNIA)
) ss
COUNTY OF FRESNO)

I, MYRA A. PISH, Certified Shorthand Reporter, do hereby certify that the foregoing pages comprise a full, true and correct transcript of my shorthand notes, and a full, true and correct statement of the proceedings held at the time and place heretofore stated.

DATED: October 10, 2023

FRESNO, CALIFORNIA

MYRA A. PISH, RPR CSR
Certificate No. 11613