

# NOSB NATIONAL LIST FILE CHECKLIST

## LIVESTOCK

**MATERIAL NAME: #11 Milk Replacers**



**NOSB Database Form**



**References**



**MSDS (or equivalent)**



**TAP Reviews from: Lynn Brown, Marta Engel**

**NOSB/NATIONAL LIST  
COMMENT FORM  
LIVESTOCK**

**Material Name: #11 Milk Replacers**

*Please use this page to write down comments, questions, and your anticipated vote(s).*

**COMMENTS/QUESTIONS:**

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1. In my opinion, this material is:  
\_\_\_\_\_ Synthetic \_\_\_\_\_ Non-synthetic.

2. This material should be placed on the proposed National List as:  
\_\_\_\_\_ Prohibited Natural \_\_\_\_\_ Allowed Synthetic.

# TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Sept 19, 1995

Name of Material: Milk Replacers

Reviewer Name: MARTA W. ENGEL, DVM.

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Both - There may be both

If synthetic, how is the material made? (please answer here if our database form is blank)

synthetic and natural components of milk replacers.

This material should be added to the National List as:

Synthetic Allowed

Prohibited Natural

or,  Non-synthetic (This material does not belong on National List)

Are there any use restrictions or limitations that should be placed on this material on the National List?

I think whole cow milk in cow/calf operations + dairy operations makes the most sense

Please comment on the accuracy of the information in the file:

for organic production

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material?  Yes;  No

Signature Marta W Engel DVM Date 9/21/95

**Please address the 7 criteria in the Organic Foods Production Act:  
(comment in those areas you feel are applicable)**

- (1) **the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;**

*Not likely*

- (2) **the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;**

*not likely*

- (3) **the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;**

*possible - don't know much about  
the manufacturing process*

- (4) **the effect of the substance on human health;**

*not likely*

- (5) **the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;**

*don't know*

- (6) **the alternatives to using the substance in terms of practices or other available materials; and**

*Mother's milk*

- (7) **its compatibility with a system of sustainable agriculture.**

*Organic farming is about using naturally occurring biological systems. We have cows calving & producing milk. Why not feed it to the babies?*

# TAP REVIEWER COMMENT FORM for USDA/NOSB

Use this page or an equivalent to write down comments and summarize your evaluation regarding the data presented in the file of this potential National List material. Complete both sides of page. Attach additional sheets if you wish.

This file is due back to us by: Sept. 19, 1995

Name of Material: Milk Replacers

Reviewer Name: Lynn Brown

Is this substance Synthetic or non-synthetic? Explain (if appropriate)

Synthetic - Some milk based on milk products & If synthetic, how is the material made? (please answer here if our database form is blank) mineral + Vitamin supplements should be allowed, milk replacer based on non-milk products, i.e., vegetable derived protein, meat extracts, etc. should be synthetic & not allowed.

This material should be added to the National List as:

Synthetic Allowed                       Prohibited Natural

or,  Non-synthetic (This material does not belong on National List)

Are there any use restrictions or limitations that should be placed on this material on the National List?

milk replacer based on non milk products should not be allowed.

Please comment on the accuracy of the information in the file:

I believe the information is accurate

Any additional comments? (attachments welcomed)

Do you have a commercial interest in this material?  Yes;  No

Signature Lynn R. Brown                      Date 9/14/95

**Please address the 7 criteria in the Organic Foods Production Act:  
(comment in those areas you feel are applicable)**

- (1) the potential of such substances for detrimental chemical interactions with other materials used in organic farming systems;**

*No problem*

- (2) the toxicity and mode of action of the substance and of its breakdown products or any contaminants, and their persistence and areas of concentration in the environment;**

*No problem*

- (3) the probability of environmental contamination during manufacture, use, misuse or disposal of such substance;**

*None*

- (4) the effect of the substance on human health;**

*No problem*

- (5) the effects of the substance on biological and chemical interactions in the agroecosystem, including the physiological effects of the substance on soil organisms (including the salt index and solubility of the soil), crops and livestock;**

*No problem*

- (6) the alternatives to using the substance in terms of practices or other available materials; and** *When the farmer's milk is not available a good milk replacer based on milk products is a good substitute. Vegetable based milk replacers generally are not as good.*

- (7) its compatibility with a system of sustainable agriculture.**

*It is compatible with sustainable agriculture*

**Identification**

<b>Common Name</b>	<b>Milk Replacers</b>	<b>Chemical Name</b>	
<b>Other Names</b>	D-(+)-Lactose		
<b>Code #: CAS</b>	63-42-3 D-(+)-Lactose	<b>Code #: Other</b>	
<b>N. L. Category</b>	unknown	<b>MSDS</b>	<b>yes</b>

**Chemistry**

**Family**

**Composition** May contain any or all of the following: Milk, soybeans, soy protein concentrate, meat-solubles, pea-derived protein, fish protein concentrate, dietary amines, porcine immunoglobulin, amino acids.

**Properties** Provides the balanced amounts of nutrients as found in milk.

**How Made**

While the primarily milk derived and soy derived milk replacers are from natural sources, the additives and the processing necessary to form soy protein concentrate may not be natural. The question needs to be addressed of whether the milk and soy sources need to be organically produced.

**Use/Action**

**Type of Use** Livestock  
**Use(s)** Nutrient source for young animals.

**Action**

**Combinations**

**Status**

**OFPA**

**N. L. Restriction**

**EPA, FDA, etc**

**Safety Guidelines**

**Directions**

**Registration**

**State Differences**

**Historical status**

**International status**

**OFPA Criteria**

**2119(m)1: chemical interactions**

**2119(m)2: toxicity & persistence**

**2119(m)3: manufacture & disposal consequences**

**2119(m)4: effect on human health**

**2119(m)5: agroecosystem biology**

**2119(m)6: alternatives to substance**

Natural mother's milk.

**2119(m)7: Is it compatible?**

**References**

See attached references.



## MILK REPLACERS REFERENCES

AU: Mir,-P.S.; Burton,-J.H.; Buchanan-Smith,-J.G.

TI: Nutritional performance of calves fed milk replacers containing processed soybean products.

SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. Mar 1991. v. 71 (1) p. 97-106.

CN: DNAL 41.8-C163

AU: Royeaerd,-H.; Heyde,-H.-van-der; Mets,-J.P.-de; Henderickx,-H.K.

TI: The use of milk replacers and the effect on subsequent performance of newborn piglets.

SO: B-S-A-P-Occas-Publ-Occas-Publ-Br-Soc-Anim-Prod. Midlothian, Scotland : The Society. 1989. (13) p. 97-100.

CN: DNAL SF5.B74

AU: Gardner,-R.W.; Shupe,-M.G.; Brimhall,-W.; Weber,-D.J.

TI: Causes of adverse responses to soybean milk replacers in young calves.

SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. May 1990. v. 73 (5) p. 1312-1317.

CN: DNAL 44.8-J822

AU: Erickson,-P.S.; Schauff,-D.J.; Murphy,-M.R.

TI: Diet digestibility and growth of Holstein calves fed acidified milk replacers containing soy protein concentrate.

SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. June 1989. v. 72 (6) p. 1528-1533.

CN: DNAL 44.8-J822

AU: Knott,-F.N.

TI: Observations on use of acidified milk replacers.

SO: N-C-Dairy-Ext-News. Raleigh, N.C. : North Carolina Agric. Extension Service. Apr 1986. p.3-6.

CN: DNAL 275.29-N811NC

AU: Khorasani,-G.R.; Ozimek,-L.; Sauer,-W.C.; Kennelly,-J.J.

TI: Substitution of milk protein with isolated soy protein in calf milk replacers.

SO: J-Anim-Sci. Champaign, Ill. : American Society of Animal Science. June 1989. v. 67 (6) p. 1634-1641.

CN: DNAL 49-J82

AU: Khorasani,-G.R.; Sauer,-W.C.; Maenhout,-F.; Kennelly,-J.J.

TI: Substitution of milk protein with soyflour or meat-solubles in calf milk replacers.

SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. June 1989. v. 69 (2) p. 373-382.

CN: DNAL 41.8-C163

AU: Schoonderwoerd,-M.; Misra,-V.

TI: Detection and quantitation of pea and soy-derived proteins in calf milk replacers.

SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. Jan 1989. v. 72 (1) p. 157-161. ill.

CN: DNAL 44.8-J822

AU: DeBoer,-H.; Hacker,-R.R.; Leeson,-S.; Wagemans,-V.

TI: Fish protein concentrate (Conmar 80) or refined soy flour as substitutes for skim milk powder in calf milk replacers.

SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. Dec 1988. v. 68 (4) p. 1155-1161.

CN: DNAL 41.8-C163

AU: Grant,-A.L.; Thomas,-J.W.

TI: Improving milk replacers containing soybean proteins with dietary amines.

SO: Res-Rep-Mich-State-Univ-Agric-Exp-Stn. East Lansing, Mich. : The Station. Sept 1987. (487) p. 40-42.

CN: DNAL 284.9-M58

AU: Hand,-M.S.; Hunt,-E.; Phillips,-R.W.

TI: Milk replacers for the neonatal calf.

SO: Vet-Clin-N-Am-Food-Anim-Pract. Philadelphia, Pa. : W.B. Saunders Company. Nov 1985. v. 1 (3) p. 589-608.  
CN: DNAL SF601.V535

AU: Maxfield,-S.L.; White,-R.D.; Walters,-J.L.; Allen,-S.D.  
TI: Whole milk or milk-replacers: a nutritional and economic comparison.  
SO: Utah-Sci-Utah-Agric-Exp-Stn. Logan : The Station. Spring 1986. v. 47 (1) p. 9-13. ill.  
CN: DNAL 100-UT1F

AU: Seegraber,-F.J.; Morrill,-J.L.  
TI: Effect of protein source in calf milk replacers on morphology and absorptive ability of small intestine.  
SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. Feb 1986. v. 69 (2) p. 460-469. ill.  
CN: DNAL 44.8-J822

AU: Silva,-A.G.; Huber,-J.T.; DeGregorio,-R.M.  
TI: Influence of substituting two types of soybean protein for milk protein on gain and utilization of milk replacers in calves.  
SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. Jan 1986. v. 69 (1) p. 172-180.  
CN: DNAL 44.8-J822

AU: Wijayasinghe,-M.S.; Smith,-N.E.; Baldwin,-R.L.  
TI: Growth, health, and blood glucose concentrations of calves fed high-glucose or high-fat milk replacers.  
SO: J-Dairy-Sci. Champaign, Ill. : American Dairy Science Association. Dec 1984. v. 67 (12) p. 2949-2956. ill.  
CN: DNAL 44.8-J822

AU: Whiting,-R.; Owen,-B.D.; Elliot,-J.I.; Beames,-R.M.  
TI: Porcine immunoglobulin-fortified milk replacers for newborn low-birth-weight pigs.  
SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. Dec 1983. v. 63 (4) p. 993-996.  
CN: DNAL 41.8-C163

AU: Jenkins,-K.J.; Emmons,-D.B.  
TI: Fortification of calf milk replacers with amino acids in free form of plastein-bound.  
SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. Dec 1983. v. 63 (4) p. 893-903.  
CN: DNAL 41.8-C163

AU: Latrille,-L.; Pare,-J.P.; St-Laurent,-G.; Pomar,-C.  
TI: Heavy veal production with Holstein calves raised by multiple suckling or milk replacers and fattened with whole corn, barley or oats.  
SO: Can-J-Anim-Sci. Ottawa : Agricultural Institute of Canada. Sept 1983. v. 63 (3) p. 643-653.  
CN: DNAL 41.8-C163

AU: Stobo,-I.J.F.  
TI: Milk replacers for calves [Diets, composition, digestion].  
SO: Recent advances in animal nutrition, 1983 / W. Haresign. London : Butterworths, 1983. p. 113-140. ill.  
CN: DNAL SF95.N87-1983

AU: Swannack,-K.  
TI: Systems of calf rearing [Weaning, feed intake, milk replacers].  
SO: Recent advances in animal nutrition, 1983 / W. Haresign. London : Butterworths, 1983. p. 105-112.  
CN: DNAL SF95.N87-1983

AU: Campos,-O.F.; Huber,-J.T.  
TI: Performance and digestion by calves from limestone added to milk replacers containing soy protein concentrate.  
SO: J-Dairy-Sci. Champaign : American Dairy Science Association. Nov 1983. v. 66 (11) p. 2365-2372.  
CN: DNAL 44.8-J822

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**MSDS for D-(+)-LACTOSE**  
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**1 - PRODUCT IDENTIFICATION**  
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PRODUCT NAME: D-(+)-LACTOSE  
FORMULA: C<sub>12</sub>H<sub>22</sub>O<sub>11</sub> FORMULA WT: 342.30  
CAS NO.: 63-42-3 NIOSH/RTECS NO.: OO9625000  
COMMON SYNONYMS: B-LACTOSE; MILK SUGAR; 4-0-BETA-D-GALACTOPYRANOSYL-D-GLUCOSE  
PRODUCT CODES: P347  
EFFECTIVE: 06/09/86 REVISION #01

PRECAUTIONARY LABELLING

BAKER SAF-T-DATA(TM) SYSTEM  
HEALTH - 0 NONE  
FLAMMABILITY - 1 SLIGHT  
REACTIVITY - 1 SLIGHT  
CONTACT - 0 NONE

HAZARD RATINGS ARE 0 TO 4 (0 = NO HAZARD; 4 = EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT: SAFETY GLASSES; LAB COAT  
PRECAUTIONARY LABEL STATEMENTS  
KEEP IN TIGHTLY CLOSED CONTAINER. WASH THOROUGHLY AFTER HANDLING.  
SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)

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**2 - HAZARDOUS COMPONENTS**  
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COMPONENT	%	CAS NO.
NOT APPLICABLE		

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**3 - PHYSICAL DATA**  
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BOILING POINT: N/A VAPOR PRESSURE(MM HG): N/A  
MELTING POINT: N/A VAPOR DENSITY(AIR=1): N/A  
SPECIFIC GRAVITY: 1.53 EVAPORATION RATE: N/A  
(H<sub>2</sub>O=1) (BUTYL ACETATE=1)  
SOLUBILITY(H<sub>2</sub>O): APPRECIABLE (MORE THAN 10 %) % VOLATILES BY VOLUME: 0  
APPEARANCE & ODOR: WHITE CRYSTALLINE POWDER.

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**4 - FIRE AND EXPLOSION HAZARD DATA**  
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FLASH POINT (CLOSED CUP N/A  
FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A %  
FIRE EXTINGUISHING MEDIA  
USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.  
SPECIAL FIRE-FIGHTING PROCEDURES  
FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED  
BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE.-

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**5 - HEALTH HAZARD DATA**  
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CARCINOGENICITY: NTP: NO IARC: NO Z LIST: NO OSHA REG: NO

EFFECTS OF OVEREXPOSURE: NO EFFECTS OF OVEREXPOSURE WERE DOCUMENTED.  
TARGET ORGANS: NONE IDENTIFIED  
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: NONE IDENTIFIED  
ROUTES OF ENTRY: NONE INDICATED  
EMERGENCY AND FIRST AID PROCEDURES  
INGESTION: IF SWALLOWED AND THE PERSON IS CONSCIOUS, IMMEDIATELY GIVE  
LARGE AMOUNTS OF WATER. GET MEDICAL ATTENTION.  
INHALATION: IF A PERSON BREATHE IN LARGE AMOUNTS, MOVE THE EXPOSED  
PERSON TO FRESH AIR. GET MEDICAL ATTENTION.  
EYE CONTACT: IMMEDIATELY FLUSH WITH PLENTY OF WATER FOR AT LEAST 15  
MINUTES. GET MEDICAL ATTENTION.  
SKIN CONTACT: IMMEDIATELY WASH WITH PLENTY OF SOAP AND WATER FOR AT LEAST  
15 MINUTES.

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#### 6 - REACTIVITY DATA

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STABILITY: STABLE                   HAZARDOUS POLYMERIZATION: WILL NOT OCCUR  
CONDITIONS TO AVOID: NONE DOCUMENTED  
INCOMPATIBLES:           STRONG OXIDIZING AGENTS

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#### 7 - SPILL AND DISPOSAL PROCEDURES

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STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE  
WEAR SUITABLE PROTECTIVE CLOTHING. CAREFULLY SWEEP UP AND REMOVE.  
DISPOSAL PROCEDURE  
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL  
ENVIRONMENTAL REGULATIONS.

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#### 8 - PROTECTIVE EQUIPMENT

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VENTILATION:           USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION  
TO KEEP FUME OR DUST LEVELS AS LOW AS POSSIBLE.  
RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION  
CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS  
HIGH, USE AN APPROPRIATE RESPIRATOR OR DUST MASK.  
EYE/SKIN PROTECTION: SAFETY GLASSES WITH SIDESHIELDS, PROPER GLOVES ARE  
RECOMMENDED.

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#### 9 - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA(TM) STORAGE COLOR CODE: ORANGE (GENERAL STORAGE)  
SPECIAL PRECAUTIONS  
KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE  
AREA.

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#### 10 - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

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DOMESTIC (D.O.T.)  
PROPER SHIPPING NAME   CHEMICALS, N.O.S. (NON-REGULATED)  
INTERNATIONAL (I.M.O.)  
PROPER SHIPPING NAME   CHEMICALS, N.O.S. (NON-REGULATED)