NOSB NATIONAL LIST
FILE CHECKLIST

CROPS

MATERIAL NAME: **#3 Antibiotics**

✓ **NOSB Database Form**

✓ **References**

✓ **MSDS (or equivalent)**

✓ **TAP Reviews from:** **Jerry Feitelson, Philip VanBuskirk, and Gregg Young**

NOSB/NATIONAL LIST
COMMENT FORM
CROPS

Material Name: #3 Antibiotics

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 15, 1995

Name of Material: Antibiotics

Reviewer Name: Jerry Feitelson

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

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

This material should be added to the National List as:

____ Synthetic Allowed ____ Prohibited Natural

or, X ~~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?

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

Any additional comments? (attachments welcomed)

See attachment

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

Signature Jerald Feitelson **Date** 18 Sept 1995

USDA/TAP Comments on Material Database

Antibiotics

General Comments

The category of "Antibiotics" includes compounds with an enormous variety of chemical structures, diverse modes of action and toxicology, and different effects on the environment. More than 6,000 distinct, naturally occurring chemicals have been described with antibiotic activity (Bérdy, 1981), isolated from eubacteria, actinomyetes, fungi and plants.

It is scientifically indefensible to include all of these compounds, or even limited to those approved for agricultural use by the E.P.A., into a single category on the National List. Antibiotics, such as avermectin, streptomycin, tetracycline, etc., interfere with entirely different biochemical processes in prokaryotic and eukaryotic cells. Their toxicity to non-target organisms vary over an extremely wide range. Some antibiotics kill insects, others kill bacteria, and still others are fungicidal. As a group, it is impossible to generalize about their Chemistry, Use/Action, Status, or OFPA Criteria.

For example, it is thought that insecticidal avermectin interferes preferentially with GABA receptors in the invertebrate nervous system, bactericidal streptomycin interferes with prokaryotic protein synthesis via binding to ribosomal RNA, and bacteriostatic tetracycline binds to bacterial membranes and thereby interferes with ion pumps essential for cellular function.

For these reasons, each antibiotic should be evaluated separately for inclusion in the National List based on its individual properties.

The above comments are provided in an attempt to accurately complete the NOSB Materials Database for the review of Antibiotics under the Organic Foods Production Act.

Yours sincerely,

Jerald S. Feitelson, Ph.D.
Science Fellow
Reviewer for the USDA/TAP

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: Antibiotics

Reviewer Name: Philip VanBuskirk

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

non-synthetic

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

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?

NO.

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

Any additional comments? (attachments welcomed)

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

Signature Philip VanBuskirk **Date** 9/9/95

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: September 19, 1995

Name of Material: Antibiotics

Reviewer Name: GREGG YOUNG CPAg

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

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

TERRAMYCIN - NON (SIMILIAR PROCESS TO STREP)
STREPTOMYCIN - NON
AVERMECTIN - SYNTHETIC (CHANGED AFTER EXTRACTION FROM MICROBES)
BLIGHT BAN - NON

This material should be added to the National List as:

~~TERRAMYCIN~~ ~~STREPTOMYCIN~~ **Synthetic Allowed** ____ **Prohibited Natural**

or, BLIGHT BAN ____ **Non-synthetic (This material does not belong on National List)**

TERRAMYCIN
STREPTOMYCIN

AVERMECTIN ??

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

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

MISSING SPECIFICS ON OTHER MATERIALS

Any additional comments? (attachments welcomed)

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

Signature Gregg A Young **Date** 9/13/95

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;

BIOLOGICALS - STREP TERRA NOT BLIGHT BAN LIKELY

AVERMECTIN NOT KNOWN

(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;

BIOLOGICALS - SHOULD BREAKDOWN QUICKLY

AVERMECTIN - TOXIC TO BEES

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

NOT LIKELY

POSSIBLE

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

STREP + TERRAMYCIN ARE HUMAN ANTIBIOTICS. ALTHOUGH RESIDUES WOULD CAUSE NO HEALTH PROBLEMS, IT SEEMS POSSIBLE WORKERS/SPRAYERS COULD DEVELOP BACTERIA RESISTANT TO THESE TWO (INFECTIONS, EAR, ETC)

(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;

BIOLOGICALS - NOT LIKELY

AVERMECTIN - COULD AFFECT NON TARGETS - HIGHLY TOXIC TO BEES

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

BLIGHT BAN

AVERMECTIN - SAFER'S SOAP, BOTANICALS

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

STREP - TERRAMYCIN BLIGHT BAN - YES

AVERMECTIN - NO

NOSB Materials Database

Identification

Common Name **Antibiotics** **Chemical Name**

Other Names Agrimycin 17, Phytoactin, Streptomycin, Terramycin, Abamectin

Code #: CAS 57-92-1 streptomycin **Code #: Other**

N. L. Category unknown **MSDS**

Chemistry

Family

Composition Intermediate or end-products of microbial metabolism.

Properties Antibiotics must be able to act on the pest microorganism without being toxic to the host cells.

How Made

Microorganisms are grown in a totally enclsed stainless steel or nickel-chrome alloy tank which is fitted with aerating and agitating devices and cooling coils to maintain temperature control. The medium may be sterilized either in the tank or in a separate cooker before entering the tank. The medium contains a carbohydrate such as glucose or lactose, a nitrogen source which can either be urea or soybean meal or whey, and various salts as nutrients for the microbes. After culture the microorganisms are removed from the fermented broth, either by filtration or centrifugation. The antibiotic is recovered from the fermented broth by solvent extraction, ion-exchange chromatography, or by precipitation.

Use/Action

Type of Use Crops BLIGHT BAN STLER, TERRA STRAWBERRIES + PEARS

Use(s) Fireblight control in tree fruits. Abamectin is used for leaf miners, mites, and pear psylla.

BACTERIA + PEACHES ORNAMENTALS ONLY

Action

Combinations

Status

OFPA

N. L. Restriction

EPA, FDA, etc — AVERMECTIN = PERMIT REQ'D

Safety Guidelines **Directions**

Registration **State Differences**

Historical status

Internationl status

OFPA Criteria

2119(m)1: chemical interactions BLIGHT BAN

INERTS 29% - UNKNOWN - MOST LIKELY FOOD GRADE SINCE MATERIAL CONTAINS LIVE BACTERIA & MUST BE REFRIGERATED

2119(m)2: toxicity & persistence

Breaks down readily on contact with soil.

2119(m)3: manufacture & disposal consequences

2119(m)4: effect on human health

Because they are generally used in the season when there is not fruit on the tree, and because they are broken down long before they can be translocated into the edible portion of the plant, there is little if any impact on the person consuming such fruit. POSSIBILITY OF ANTIBIOTIC RESISTANCE BUILDUP OF HUMAN PATHOGENS FROM HUMAN (WORKER) EXPOSURE.

2119(m)5: agroecosystem biology

While antibiotics are undoubtedly toxic to some microorganisms in the soil, they are being produced naturally by existing soil microbes all the time and so would not create a soil imbalance.
SOME RESISTANCE TO STREPTOMYCIN BY FIREBLIGHT IS DOCUMENTED.

2119(m)6: alternatives to substance

for fireblight only sanitation, pruning for air circulation, good nutrition, and prayer.
" " BLIGHT BAN 506, BIO-CONTROL Pseudomonas spp. (NATURAL) EPA #64004-2 -65343

2119(m)7: Is it compatible?

References

Kirk-Othmer Encyclopedia of Chemical Technology, 3rd. Ed., 1982. John Wiley & Sons, NY.

NOSB Materials Database

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2119(m)7: Is it compatible?

References

Kirk-Othmer Encyclopedia of Chemical Technology, 3rd. Ed., 1982. John Wiley & Sons, NY.

Recommended for Agricultural/Commercial Use

AVID® 0.15 EC
MITICIDE/INSECTICIDE

For Control of Leafminers and Spider Mites on Ornamental Plants

ACTIVE INGREDIENT	
Avermectin B_1 [A mixture of avermectins containing ≥80% avermectin B_{1a} (5-0-demethyl avermectin A_{1a}) and ≤20% avermectin B_{1b} (5-0-demethyl-25-de(1-methylpropyl)-25-(1-methylethyl) avermectin A_{1a})]	1.9%*
INERT INGREDIENTS	98.1%

*1 gallon contains 0.15 pound Avermectin B_1

KEEP OUT OF REACH OF CHILDREN

WARNING

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la etiqueta haya sido explicada ampliamente.

See Other Panels for Additional Precautionary Statements and Statement of Practical Treatment

EPA EST. NO. 39578-TX-1 EPA REG. NO. 618-96

MSD AGVET

Division of MERCK & CO., INC.
Rahway, New Jersey 07065, U.S.A.

AVID REG TM MERCK & CO., INC.

Made in U.S.A. U.S. Pat. 4,310,519

1 QUART Product **06791A**

Agri-mycin®17

(agricultural streptomycin) . . .
for supressing apple and pear fire blight and other bacterial and fungal diseases on a variety of crops and ornamentals

Mycoshield®

(agricultural terramycin) . . .
for supressing fire blight of pear and bacterial spot of peach and nectarine

PRODUCTS THAT SET THE STANDARD

Agri-mycin 17 is an agricultural streptomycin used to control fire ight of apple and pear, bacterial spot of tomato and pepper, tobacco ildfire and blue mold, soft rot and blackleg of potato seed pieces, d several diseases and fungal infections of ornamentals.

Since its release, Agri-mycin 17 has played a particularly nificant role in controlling fire blight of apple and pear.

Mycoshield, Agri-mycin 17's "sister product" is an agricultural ramycin used to control fire blight of pear and bacterial spot of ch and nectarine. Like Agri-mycin 17, Mycoshield has been ecially important to growers of pears and to growers of peaches l nectarines as well.

pendable Protection

Agri-mycin 17 and Mycoshield are protectant bactericides that are ect[illegible] when applied prior to the onset of periods during which ditions favorable to infection exist . . . protection even in ironments in which the bacterial diseases described flourish. Once Agri-mycin 17 and Mycoshield fully absorbed, they cannot be washed away ain or irrigation.

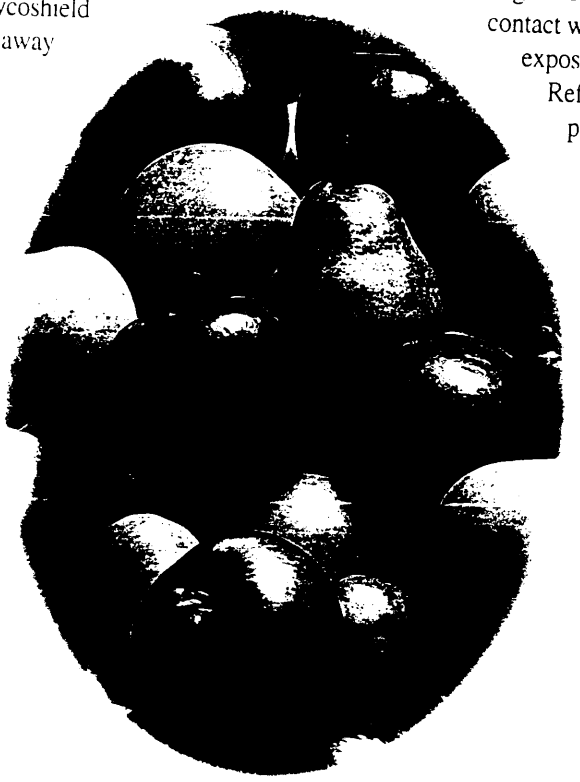
ntle on Plants and Animals

Agri-mycin 17 and Mycoshield are oxic to domestic animals, fish, and life and gentle to plants when ied as recommended. These ucts will not generally change the arance of fruit or threaten normal vigor.

gri-mycin 17 and Mycoshield cause bleaching and leaf burn on Pears when applied under cold. onditions. Please refer to the rnia Spray Guide.

patible with Most Pesticides

th products are compatible with most id[illegible]mmonly used in an orchard.



Important Instructions for Use

Do not combine Agri-mycin 17 or Mycoshield with emulsifiable concentrates. Use wettable powder formulations only.

Do not use Agri-mycin 17 or Mycoshield with alkaline-based materials. If the water source is highly alkaline, add an appropriate acidifying agent to bring the water to neutral or slightly acidic levels. Do not spray on trees that have alkaline spray residue.

In solution, Agri-mycin 17 and Mycoshield are stable. However, prepare only the amount of spray solution you will require daily. Holding the spray solution for longer than 24 hours is not recommended.

Although the risk of eye and/or skin irritation is extremely low, use standard protection procedures while preparing and spraying solutions of Agri-mycin 17 or Mycoshield. Use accepted protective gear to avoid direct contact with the eyes and skin, and use a mask, rubber gloves, and chemical goggles to protect against contact with spray mist. In the event of accidental exposure to skin or eyes, wash the area thoroughly. Refer to the Directions for Use section of the product label.

Exceptionally Stable

Agri-mycin 17 and Mycoshield demonstrate no significant loss in activity when stored indefinitely under normal conditions. Avoid storage in areas with high temperatures and high humidity, and keep drum tightly closed.

Resistance Management

Growers of pears can rotate the use of Agri-mycin 17 and Mycoshield as part of a fire blight resistance management program where streptomycin-resistant strains are not present.

SPECIMEN

BlightBan™ A506

For reduction of frost and frost damage on cherry, apple, pear, almond, peach, tomato, potato, and strawberry. Aids in fire blight control on apple and pear.

ACTIVE INGREDIENTS:

Pseudomonas fluorescens A506	71%
INERTS	29%
TOTAL	**100%**

(Contains 11.3 x 10^{10} CFU/gm)

EPA Reg. No. 64004-2-65343
EPA Est. No. 45398-FL-1
BlightBan™ — Trademark of Plant Health Technologies.

KEEP OUT OF REACH OF CHILDREN
CAUTION

STATEMENT OF PRACTICAL TREATMENT

CAUTION: Avoid contact with eyes, skin or clothing.

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

IF IN EYES, flush with plenty of water. Get medical attention if irritation persists.

PERSONAL PROTECTIVE EQUIPMENT

APPLICATORS AND OTHER HANDLERS MUST WEAR:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C)

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should: (1) Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet; (2) Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing; (3) Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Keep out of lakes, ponds or streams. Do not contaminate water when disposing of equipment washwaters.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

STORAGE: Keep container unopened until use. Store unused product in original container. This product should be stored at temperatures between -4°F and 40°F (frozen or refrigerated) for long-term storage. This product may be stored at room temperature not to exceed 70°F for one week prior to use. Keep out of reach of children and animals.

PESTICIDE DISPOSAL: Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law.

CONTAINER DISPOSAL: Completely empty bag into application equipment. Then dispose of bag in a sanitary landfill, by incineration or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

DO NOT APPLY THROUGH ANY TYPE OF IRRIGATION SYSTEM.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training; decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE), notification to workers and Restricted Entry Interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the Restricted Entry Interval (REI) of 12 hours. PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is: Coveralls; waterproof gloves; shoes plus socks.

GENERAL INFORMATION

MODE OF ACTION: BlightBan™ contains non-frost forming strains of naturally-occuring *Pseudomonas* which competitively reduce or prevent the growth of frost-forming and fire blight inducing bacteria on plant leaves, blossoms, and fruit.

FROST PROTECTION:

For frost protection, apply 5 ounces of **BlightBan™** in concentrate sprays (50-150 gallons per acre) or 7 ounces in dilute sprays (200-350 gallons per acre). Use higher rates within each recommended range depending upon coverage characteristics of application equipment and plant size.

Mixing and Application Instructions:

- For best results, make initial spray when plants are:
  Tomato, Potato—Two true-leaf expansion.
  Strawberry—First bloom initials emerging from crown.
  Almond, Peach—First bloom at about 10% fully-opened.
  Apple, Pear, Cherry—Late green tip - half-inch green tip.
- Repeat treatments as necessary (total 2-3 applications) to ensure uniform coverage to primary blossom and leaf tissue.
- Uniform spray coverage is required.
- Fill spray tank ¾ full with water and add recommended amount of this product to tank. Mix thoroughly while adding remainder of water. Agitate as necessary to maintain suspension.
- Spray solution should be used within 48 hours after mixing.
- Standard municipal chlorinated water does not significantly reduce viability.

FIRE BLIGHT REDUCTION:

BlightBan™ should be used in an integrated fire blight control program. **BlightBan™** improves control with any existing antibiotic spray program.

As an aid in the control of fire blight in pears and apples, apply 5 ounces of **BlightBan™** in concentrate sprays (50-150 gallons per acre) or 7 ounces in dilute sprays (200-350 gallons per acre). Better control is obtained with concentrate sprays of at least 100 gallons per acre. The first application should be made at 15-20% bloom followed by a second application at first petal fall—full bloom, and a third application at "rattail" bloom for pear, or post petal fall for apples. Do not tank mix with ziram, mancozeb, maneb, copper-based compounds. **BlightBan™** is compatible with streptomycin, Terramycin®, Rovral®, and Benlate®. **COPPER SPRAYS OR COPPER DUST APPLICATIONS ARE INCOMPATIBLE WITH THE PERFORMANCE OF THIS PRODUCT.**

PHT 2040SPEC (2/95)

NET WEIGHT 2.2 LBS. (1 Kg.)

PLANT HEALTH TECHNOLOGIES
P.O. Box 15057, Boise, ID 83715 • P.O. Box 198, Lathrop, CA 95330

Material Safety Data Sheet
J. R. Simplot Company
M&C Group

Trade Name: BlightBan™ A506
Registration No: 64004-2-65343

BLIGh.
February 16, 1995

Section 1 — Chemical Product and Company Information

Manufactured For: Plant Health Technologies
P.O. Box 15057
Boise, ID 83715
Emergency Phone - Chemtrec: 1-800-424-9300

Product Name: BlightBan™ A506
Common Name: BlightBan™
Chemical Type: Anti-bacterial & Microbial Frost Protection Product

Section 2 — Composition Information

Chemical Name and Synonyms	C.A.S. No.	Chemical Formula	WT%	TLV	PEL
			Hazardous		
None listed					
			Non-Hazardous		
BlightBan™ A506 is a mixture of one strain of naturally occurring Pseudomonas bacteria and an inert ingredient.				Unknown	Unknown

Section 3 — Hazards Identification

Ingestion: This product is an organic powder. No data available on human ingestion.
Inhalation: Avoid breathing powder dust. May cause slight discomfort to lungs when exposed to high concentrations of product dust, especially during mixing. Symptoms include nasal discharge and difficulty breathing.
Eye Contact: Avoid contact with eyes. May cause itchy eyes.
Skin Absorption: Avoid contact with skin. Wash thoroughly after handling.
Skin Contact: Avoid contact with skin. Wash thoroughly after handling.
Effects of Overdose: Not listed

Section 4 — First Aid Measures

Ingestion: No data available. Seek medical attention if condition persists.
Inhalation: Remove to fresh air. Seek medical attention if condition persists.
Eyes: Flush eyes with plenty of water. Seek medical attention if condition persists.
Skin: Wash thoroughly with soap and water. Seek medical attention if condition persists.

Section 5 — Fire Fighting Measures

Extinguishing Media: Water, dry chemical or foam.
Special Fire Fighting Procedures: None
Unusual Fire and Explosion Hazards: None

Section 6 — Accidental Release Measures

Environmental Precautions: None listed
Steps to be taken in case material is released or spilled:
Collect dry powder into container and cover until settled.

Section 7 — Handling and Storage

Precautions to be taken in handling and storing:
Keep container closed until use. Store unused product in original container. Store at -4°f if storing longer than 2 weeks. Do not exceed 40°F.

Section 8 — Exposure Controls/Personal Protection

Ventilation Protection: Local exhaust. Mix solutions in well ventilated area.
Respiratory Protection: Applicators & handlers must wear a dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C).
Protective Clothing: Applicators & handlers must wear long-sleeved shirt and long pants, shoes plus socks. Gloves are recommended when handling or mixing powdered product.
Eye Protection: Goggles are recommended when handling or mixing powdered product.
Other: None

Section 9 — Physical and Chemical Properties

Boiling Point: Unknown
Density: Unknown
Flashpoint: Unknown
pH: Not applicable
Appearance: Light to medium tan powder. Slight characteristic odor.
Reaction with Water: None
Extinguishing Media: Water, dry chemical or foam

Solubility in Water: Unknown
% Volatiles (by volume): Not applicable
Vapor Pressure, mm Hg: Not applicable

Section 10 — Stability and Reactivity

Stability (Normal Conditions): Stable
Conditions to Avoid: Temperatures above 70°F will reduce viability of bacteria.
Incompatibility (Material to Avoid): None
dous Decomposition Products: None
dous Polymerization: Will not occur.
Conditions to Avoid: None

Section 11 — Toxicology Information

None listed

Section 12 — Ecological Information

None listed

Section 13 — Disposal Considerations

Waste disposal Procedures: Dispose of unused product or solution in accordance with local, state and federal regulations.

Section 14 — Transport Information

Shipping name: Not regulated by D.O.T.
Hazard Class: None
Reportable Quantity(RQ): None
Labels Required: None
Placard: None
EPA Est. No. 45398-FL-1

C.A.S. Number: Not applicable
D.O.T. Number: None
Haz Waste No: Not applicable
EPA Regist No: 64004-2-65343

Section 15 — Regulatory Information

Carcinogenicity: Not listed as a carcinogen.

California Prop 65:
Yes ( ) No (X)

Section 16 — Other Information

Flash Point (Test Method): Unknown
Autoignition Temperature: Not listed
Hazard Rating (N.F.P.A.): **Fire:** **Health:** 0 **Fire:** 0 **Reactivity:** 0 **Specific:** None

Flammable Limits **LOWER** **UPPER**
(% BY VOLUME) N/AN/A

MSDS Version Number: 1

Reviewed by: The Department of Regulatory Affairs
February 1995 (208) 238-2700

United States
Environmental Protection
Agency

Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-766C)
Washington, DC 20460

540/FS-88-096

EPA

Pesticide Fact Sheet

PB89-129720

Name of Chemical: STREPTOMYCIN
Reason for Issuance: Registration Standard
Date Issued: September 1988
Fact Sheet Number: 186

1. DESCRIPTION OF CHEMICAL

Chemical Name: O-2-Deoxy-2-(methylamino)-α-L-glucopyranosyl-(1->2)-O-5-deoxy-3-C-formyl-α-L-lyxofuranosyl-(1->4)-N,N'-bis (aminoiminomethyl)-D-streptomine

ANSI Common Name: Streptomycin

Other Common Names: streptamine

Principal Trade Names: Agri-Mycin 17®, Agri-Step®, Plantomycin®

EPA (Shaughnessy) Code: 006306, 006310 (streptomycin sulfate)

Chemical Abstracts Service (CAS) Number: 57-92-1, 3810-74-0 (streptomycin sulfate)

Year of Initial Registration: 1958

Pesticide Type(s): Fungicide

Chemical Family: Aminoglycoside antibiotic isolated from the bacterium Streptomyces griseus

U.S. and Foreign Producers: U.S. Merck & Co., Inc. and Pfizer, Inc.

2. USE PATTERNS AND FORMULATIONS

Registered uses: Terrestrial food crop uses on fruit and vegetables, terrestrial nonfood crop uses on tobacco and ornamentals, and greenhouse nonfood crop use on ornamentals

Uses: Ninety-eight percent of annual production is used on apples, pears, and tomatoes

Pests controlled (in general): Fungal diseases of selected fruit, vegetables, seed, and ornamental crops

Types of Formulations: Dust, wettable powder, wettable powder/dust, emulsifiable concentrate, pelleted/tablets, and liquid ready-to-use

Types and Method of Application: Foliar application by ground equipment, such as airblast. Other methods include: aircraft, duster attachment mounted over conveyor belt, hand-held or motor driven sprayers, dip treatment, tree injection treatment, slurry seed treatment.

Application Rates: Terrestrial food crop - 25 to 200 ppm
Terrestrial nonfood crop - 50 to 200 ppm

3. SCIENCE FINDINGS

Chemical Characteristics:

Physical state: powder
Color: pink to tan
Odor: burned sugar
Molecular Weight: 581.58; 1457.40 (streptomycin sulfate)
Empirical Formula: $C_{21}H_{39}N_7O_{12}$; $C_{42}H_{84}N_{14}O_{36}S_3$ (Streptomycin sulfate)

Toxicology Characteristics

Streptomycin has been used since the late 1940's to treat bacterial infections in humans. As a result of this use as a human drug, there is an extensive body of toxicological data available on streptomycin. Thus, all toxicological data requirements have been waived.

Physiological and Biochemical Characteristics

Metabolism and Persistence in Plants and Animals: The Agency has determined that plant and animal metabolism data were not needed for the following reasons:

- metabolism of streptomycin in mammals has already been traced in connection with its use in humans;
- residues are non-detectable (< 0.5 ppm) in or on crops when treated according to label use rates and directions;
- large amounts of toxicological data exist;
- most crops are treated at or before transplanting (celery, peppers, pototoes and tomatoes) and pome fruits are treated foliarly but with

a 30-day PHI for pears and a 50-day PHI for apples and crabapples

- potential daily exposure to streptomycin as a pesticide is < 0.01% of the daily clinical dosage (1-4 grams/day)

4. TOLERANCE ASSESSMENT

Tolerances have been established for residues of streptomycin in a variety of raw agricultural commodities at 0.25 ppm (40 CFR 180.245). These tolerances are supported by the available data. Tolerances must be proposed for residues of streptomycin in or on beans (succulent and dried), bean vines and bean hay to reflect the registered use on beans.

5. SUMMARY OF REGULATORY POSITIONS

- At this time, none of the risk criteria prescribing a Special Review have been met.

- While data gaps are being filled, currently registered manufacturing-use products and end-use products containing streptomycin as the sole active ingredient may be sold, distributed, formulated, and used, subject to the conditions of this Standard. In order to maintain existing registrations, registrants must provide or agree to develop additional data specified in the Data Appendices.

- No significant human dietary exposure is anticipated due to the lack of detectable residues and the long PHIs.

- Because of the large amount of existing human data, all toxicology requirements have been waived by the Agency for this Standard.

- The Agency is deferring to the Food and Drug Administration on the issue of development of streptomycin resistant microorganisms.

6. LABELING REQUIREMENTS

All streptomycin products must bear appropriate labeling as specified in 40 CFR 156.10. Appendix II of the Standard contains information on label requirements.

In order to remain in compliance with FIFRA, no pesticide product containing streptomycin may be released for shipment by the registrant after 12 months from receipt of the Guidance Document, unless the product bears amended labeling which complies with the specifications in the Standard.

In order to remain in compliance with FIFRA, no pesticide product containing streptomycin may be distributed, sold, offered for sale, held for sale, shipped, delivered for shipment, or received and (having been so received) delivered or offered to be delivered by any person after 24 months from receipt of the Guidance Document, unless the product bears amended labeling which complies with the specifications of the Standard.

Under the Precautionary Statements section of the label, the following statements must appear:

May cause allergic skin reactions. Do not breathe dust or spray mist. Wear dust mask and rubber gloves. Wash thoroughly after handling. This material is not to be used for medical, veterinary, or human purposes.

Do not apply this product in a way that will contact unprotected workers, either directly or through drift. Only protected handlers may be in the area during application. Do not enter or allow entry into treated areas until (sprays have dried/dusts have settled/ vapors have dispersed, as applicable) to perform hand labor tasks.

Decontamination

If the pesticide comes in contact with skin, wash off with soap and water. Always wash hands, face, and arms with soap and water before smoking, eating, drinking or toileting. Before removing gloves, wash them with soap and water.

7. SUMMARY OF DATA GAPS

Product Chemistry
(must be resubmitted)

Environmental Fate

Hydrolysis
Photodegradation
Aerobic and Anaerobic Metabolism
Soil Dissipation
Fish Accumulation
Adsorption/Desorption

Ecological Effects

Avian Acute Oral
Avian Subacute Dietary
Honey Bee Acute LD_{50}

8. CONTACT PERSON AT EPA

Lois A. Rossi
Product manager (21)
Fungicides-Herbicides Branch
Registration Division (TS-767C)
Office of Pesticide Programs
Environmental Protection Agency
401 M St., SW
Washington, D.C. 20460

Office location and phone number:

Room 227, Crystal Mall #2
1921 Jefferson Davis Highway
Arlington, VA
(703) 557-1900

9. DISCLAIMER: The information in this Pesticide Fact Sheet is a summary only and may not be used to satisfy data requirements for pesticide registration and reregistration. The complete Registration Standard for the pesticide may be obtained from the National Technical Information Service.

Contact the Product Manager listed above for further information.