MR. COUNTY AGENT:

You'll remember, we hope, that our last "Vegetarian" was devoted to assembling the latest on Vegetable Insect Controls.

Now, here we come with our attempt to pull together the latest VEGETABLE DISEASE CONTROLS. This has been prepared in cooperation with Station Pathologists and includes interpretations of research results up to January 1, 1954.

As we attempted to express in the one on insect control, these newsletters on pesticides are not intended to give every detail, but to make available pertinent facts for your use. See our earlier comments on precautionary statements and other considerations.

We've gained a certain amount of reaction and experience with the Key to Recommended Insect Controls forwarded with the last "Vegetarian". You will note that we have made a similar attempt to key these out for you in the attached chart on disease control. Don't think we have to point it out, but....

Don't think that the entire set of pesticide recommendations can be expressed on one page. These keys are intended to give you a ready field reference. Anyone who thinks that he can use them without a good working knowledge of the recommendations, and a certain amount of judgement, is going to be sadly mistaken.

For example, on the key you find that gray mold of tomatoes is coded out with a "G", referring to phygon. Now, this very definitely does not express the complete story. Look in the tomato narrative section and you'll find, "timing of applications appears to be of critical importance"...etc., and to go further, you would find, "no fungicide is effective after the disease has become established". In other places you may find given materials may be preferred for use in your area. See what we mean?

AGAIN SPRAY MATERIALS ARE SHOWN IN AMOUNTS (OR EQUIVALENTS) PER ONE HUNDRED GALLONS WATER. Amounts of sprays and dusts to use per acre vary widely with plant size and spacing. Remember that again thorough coverage is the essential feature.

HUSH BEAN

Rust, powdery mildew
Spray: Sulfur, wp 10 to 16 lbs.
Dust: Dusting sulfur, 325 mesh

Application variable with weather conditions. When diseased fields are near young plants and weather is mild and humid, make first application a few days after plants emerge and repeat at 7-day intervals until a few days before picking.

In the past, sulfur has been reported to cause the blossoms to shed before setting the pods, but this is now considered of minor importance. Sulfur applications have caused burning of leaves and pods when applied during periods of high (85-90°F) temperatures in the Sanford area.

To be effective for control of rust it is necessary to apply sulfur before the leaves become heavily infected. When weather is unfavorable for rust, intervals between applications can be lengthened.
Bacterial blight (no fungicidal control)

Halo blight and common bacterial blight are carried in and on the seed. (Also soil.) No seed treatment is beneficial. Sprays in the field usually not effective. Use disease-free seed grown in certain arid regions of the West. Rotate crops.

Sclerotinia

On marl soils of Homestead area apply 500 to 700 pounds of cyanamid per acre.

POLE BEAN

Rust, powdery mildew

(same as for bush bean)

Since pole beans have indeterminate growth it may be profitable to continue spraying or dusting until about end of harvest. Certain varieties are resistant to some forms of rust, and these should be used where advisable. 16 pounds of wettable sulfur in 100 gallons of spray are recommended in the West Coast area; usually a spring problem and normally not important on fall crop before mid-November.

Bacterial blight

(same as for bush bean)

Sclerotinia

(same as for bush bean)

LIMA BEAN

Bacterial blight, (same as for bush bean)

powdery mildew

CARROT

Spray:

Alternaria leaf blight (macrosporium)

Nabam 27%, 2 qts. plus 1 lb. zinc sulfate

Copper, 4 lbs. tribasic

Ziram 76%, 2 lbs.

In early plantings it may be satisfactory to begin applications when plants are 5 to 8 inches high and repeat at weekly intervals. In later plantings if the disease is established in the area, it may be necessary to begin applications shortly after emergence of the seedlings (3").

Leaf blights of carrot are serious in some localities and of minor importance in other seasons or localities.

Bacterial blight

Seed treatment in corrosive sublimate (1:1000) or hot water. Treat seed 10 minutes in water at 126°F.; or 10 minutes in 1:1000 corrosive sublimate (1 ounce crystals in 3½ gallons water), wash and dry.

CELERI

SEED BED

Damping-off

Fumigation - One pound of methyl bromide applied to 50 sq. ft. of seedbed area will control weeds and nematodes as well as damping-off. Soil should be prepared and ready for planting before fumigating. If seedbed fumigation is not practiced seed treatment may be beneficial.
Post-emergence treatment

Spray:
Spergon 48%, 3 lbs. or
Thiram 50%, 1 lb.

Begin application soon after plants emerge and repeat at 4 to 7 day intervals, depending on weather. Apply about 15 gallons of the spray per 1200 sq. ft. of bed area. Increase amount as plants become larger.

FIELD

Spray: Dust:
Early blight Nabam 27%, 2 qts. plus 1 lb. zinc sulfate
Manzate 75%, 1 ¼ lbs.
Zineb 65%, 2 lbs.
Ziram 76%, 2 lbs.
Fixed coppers-equiv. to 1 ½ lbs. metallic copper

In the Everglades area begin applications 7 to 10 days after the plants are set and repeat every 4 to 5 days. After two applications of any of the organic materials, follow with one application of copper. Nabam gives best results in the Everglades area.

In the Sanford area apply at weekly intervals unless more frequent applications are necessary. Ferbam, ziram, manzate and copper have given good results in the Sanford area.

SWEET CORN

Spray:
Helminthosporium leaf blight Nabam 27%, 2 qts. plus 3/4 lb. zinc sulfate
Zineb 65%, 2 lbs.

H. turcicum, the species producing large, "boat-shaped" lesions, can ruin a crop in three weeks of wet weather. Nabam or zineb properly applied once or twice weekly, depending on weather conditions, will give economic control. For crops in "the whorl stage" of growth the sprayer should have two nozzles over the row to direct a generous quantity of the spray into the whorl in addition to the side nozzles, required for complete coverage of unfurled leaves. Application of fungicide should cease 10 days before harvest unless younger corn is growing nearby.

It has been observed that these same materials may also control corn rust.

CRUCIFERS

SEED BED

Spray: Dust:
Downy mildew and Spergon wp 48%, 4 lbs.
Alternaria leaf ---

spot

Begin applications 7 to 10 days after planting and repeat three times a week until plants are set in the field.

Plants are susceptible to both diseases at all stages of growth, but downy mildew is more common and destructive in the seedbed.

In the Hastings area, the latest summary suggests the following materials for downy mildew on cabbage (amounts per 100 gallons unless dust specifed) for use in plant beds and seeded fields: preferred are spergon (48%) 2 lbs., or stabilized spergon 5% dust; if spergon cannot be applied use nabam 2 qts. plus 1 lb. ZnSO4, or zineb 1 ½ lbs. In the field the following are suggested: nabam 2 qts. plus 1 lb. ZnSO4, stabilized spergon (50%) 2 lbs., stabilized spergon 5% dust, or 6% zineb dust.

FIELD

Spray:
Downy mildew and Nabam 27% 2 qts. plus 3/4-1 lb. zinc sulfate
Alternaria leaf ---
Where seed is sown directly in the field spray seedlings two to three times a week, beginning when seedlings have emerged and stopping when plants are thinned to a stand. If alternaria leaf spot is developing rapidly when heads are half-grown, resume spraying and using 100 to 150 gallons spray per acre every four or five days. Nabam is very effective against alternaria leaf spot in the field and gives good control of downy mildew. Use 2 to 3 ounces of spreader-sticker per 100 gallons. See summary under "Seed Bed" for Hastings area.

**Black rot**

Hot water treatment: 122°F. for 25 minutes, cabbage; 18 minutes, broccoli and cauliflower.

Fill cheesecloth bags about two-thirds full of seed, tie the tops and immerse in a container of water at the temperature indicated. Keep the water within 1°F. of that specified. Keep the seed under water and stir to maintain uniform temperature. At the end of the period remove seed from the hot water and plunge into cold water—spread out and dry. Treatment is a delicate operation and is best performed by a trained operator using special equipment.

Test seed for germination before treating with hot water. Weak seed may be killed while good seed will stand treatment and germinate well if planted the same season it is treated. Seed grown in the Puget Sound area does not need treatment. The disease organism is short-lived, but it is not advisable to plant on land planted to crucifers the previous year.

**Black leg**

Use same treatment as for black rot.

Use seed grown in areas where black leg does not usually occur, such as the Puget Sound area. When in doubt of seed source—treat.

**Yellows**

No control after soil is infected except use of resistant varieties. Growers should take every possible precaution to secure disease-free plants.

**TURNIP-MUSTARD**

**Downy mildew**

Spray: Nabam 27% 2 qts. plus 3/4-1 lb. zinc sulfate

When weather favors development of the disease, begin applications when seedlings emerge and repeat at 3-4 day intervals. Addition of a spreader-sticker may be advisable.

Leaf spots

The exact causes and controls of the various leaf spot conditions reported on these crops have not been fully determined. Alternaria might be controlled by nabam applications. Cercospora may be still another cause and nabam has not been observed to be an effective control.

**CUCUMBER, CANTALOupe, and SQUASH**

**Downy mildew**

Spray: Nabam 27% 2 qts. plus 1 lb. zinc sulfate

Zineb 5% 2 lbs.

Downy mildew is usually serious in all sections of the state when weather conditions favor its spread and development. In major producing areas during warm, damp weather it is necessary to spray every 3 or 4 days, beginning applications before runners begin to form. In seasons of light infection it may be possible to control the disease by beginning applications when runners begin to form and repeating at weekly intervals until harvest.

Zineb dust, and weekly spray intervals, are not generally considered to be dependable controls in most commercial areas of production but may be adequate in cer-
tain seasons in the Webster area and some sections of North Florida. 

Manzate (75%, 1 ½ lbs.) has appeared promising and may rank with nabam and zineb for the control of this disease.

**Anthracnose**  
The same program suggested for downy mildew should control anthracnose.

**Powdery mildew**  
Lacking complete experimental evidence, no general recommendations for the control of this disease can be made.

At the Sanford Station crotonates have been promising, but the residue hazard has not been fully determined.

In the Sanford and Homestead areas it is reported that wettable sulfur can be used at 2 pounds per 100 gallons (4 lbs. on squash) in cool weather during winter and spring (below 90°F.). Sulfur regularly applied might cause damage to plants but it can be used 2 to 3 times in succession to eradicate powdery mildew. Addition of a wetting agent to the spray is suggested.

In the West Coast area it has been reported that a fair control is obtained by thorough coverage with nabam spray applied twice weekly; in this same area it has also been reported that one application of around 30-40 pounds of flowers of sulfur (125-175 mesh) applied on the ground through absolutely dry vines will control powdery mildew by a fumigation effect. It is possible that this drastic sulfur treatment could bring about such conditions as "acid-yellows", particularly with cantaloupes, with repeated applications followed by moderate rainfall or where the pH is already dangerously low.

**Angular leaf spot**  
Angular leaf spot does not often occur in the state. When seed supplies are adequate growers usually plant seed produced in areas where the disease is not prevalent. The use of disease-free seed is the recommended control. Infected seed can be treated for 5 to 10 minutes in corrosive sublimate (1 ounce crystals in 7 ½ gallons water), then rinse in clean water and spread out to dry.

It has been noted that copper spray (4 pounds tribasic per 100 gallons) in weekly applications is superior to nabam for preventing spread of the disease. Copper may offer a measure of control of downy mildew, but is not satisfactory when downy mildew is severe. It is imperative to maintain adequate control of downy mildew during periods favorable to its spread. Copper may be injurious to cucurbits in repeated applications, particularly during dry weather, causing a yellowing of leaf margins.

**Spray:**  
Nabam 27% 2 qts. plus 1 lb. zinc sulfate  
Dust: Zineb 4-6%

An adequate program for mildew control may also contribute to the control of this organism (choanephora); particularly a problem in wet, humid weather. Spraying for blossom blight alone may not be profitable. In the West Coast Area it has been reported questionable if blossom blight is due to a pathogen.

**EGGPLANT**

Phomopsis, fruit tipover  
No fungicidal control. Resistant varieties are Florida Market and Florida Beauty.

**LETTUCE-ESCAROLE**

**Downy mildew**  
Spray: Nabam 27% 2 qts. plus 1 lb. zinc sulfate  
Dust: Zineb 65% 2 lbs.

Begin applications when disease appears; repeat at 4-5 day intervals.
**Alternaria leaf spot**

*Spray:* Ziram 76%, 2 lbs.

Begin applications when disease appears; repeat at 4-5 day intervals.

Nabam as applied for downy mildew control should offer a measure of control for leaf spot; suggested at 7-day intervals in the West Coast Area.

**Sclerotinia**

On marl soils of Homestead area apply 500-700 pounds of cyanamid per acre.

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**ONION**

**Downy mildew**

*Spray:* Zineb 65 1/2 lbs. plus sticker
Nabam 27 1/2 qts. plus 1 lb. zinc sulfate plus sticker

Dusting sulfur, 325 mesh

When weather conditions favor the development of the disease, begin applications when seedlings emerge; repeat at intervals of 3-4 days. In certain seasons it may be possible to begin applications on a weekly schedule, shifting to twice-weekly applications if necessary.

It is extremely difficult to obtain adequate foliage coverage due to the waxy nature of the onion plant. Successful control has been reported in the West Coast area by timing dust applications to coincide with fine films of moisture forming on the leaf surface at certain periods of the day.

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**ENGLISH PEA**

**Powdery mildew**

Spray: sulfur wp 10 lbs.

Dust: Dusting sulfur, 325 mesh

Begin applications when signs of disease appear. Repeat at 10 to 14-day intervals, or often enough to keep the disease under control.

Powdery mildew sometimes becomes serious during the winter months in the Everglades area. In this locality it is usually necessary to adhere to a strict spray program to keep it under control.

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**PEPPER**

**Frogeye spot**

Spray: Nabam 27 1/2 qts. plus 1 lb. zinc sulfate
Ziram 76% 2 lbs.

Forms of copper that have proved satisfactory, diluted to give metallic copper content of 1 1/2 lbs.

In plant beds, begin when plants are 2 to 3 inches high and repeat at 7-day intervals; in fields after plants have become established, repeat at 7 to 10-day intervals as needed.

Frogeye spot is not usually a serious disease and when weather conditions are not favorable for its development the spray schedule may be modified.

**Bacterial spot**

Spray: Forms of copper that have proved satisfactory, diluted to give metallic copper content of 1 1/2 lbs.

In plant beds, begin when plants are 2 to 3 inches high and repeat at 7-day intervals; in fields after plants have become established, repeat at 7 to 10-day inter-
vals as needed. Copper is the most effective control of all approved commercially available materials. However, it will not give control when the weather is favorable for spread of the disease.

Bacterial spot is usually most severe during or following rainy, windy weather. Where it occurs with frogeye and/or alternaria spot the same schedule should take care of all diseases.

In the West Coast area a weekly spray schedule alternating copper and nabam is suggested.

In the Homestead area, copper is not recommended and will not control bacterial spot.

**Tobacco mosaic**

It is suggested that workers wash hands thoroughly in strong soap solution or 70% alcohol prior to handling pepper plants; particularly important during transplanting operation. No fungicidal control.

**IRISH POTATO**

**Late blight**

Spray: Nabam 27% 2 qts. plus 3/4-1 lb. zinc sulfate
Zineb 65% 2 lbs.

In southern parts of the state begin applications of spray for late blight when plants have emerged and continue at four- to five-day intervals. In the Hastings area begin when the plants are 6 to 8 inches high, if late blight does not show earlier, and continue at four- to five-day intervals.

At Belle Glade and Homestead late blight is usually present throughout the growing season and nothing less than the best fungicide applied on a rigid schedule gives satisfactory control. Complete coverage is essential.

In the Homestead and Hastings areas, manzate 75% (1 1/2 lbs.) is recommended for both early and late blight control.

**Early blight**

Nabam-zinc sulfate spray as recommended for control of late blight will also control early blight. See comments on manzate for Homestead and Hastings areas.

**Scab**

Treat seed with hot or cold formaldehyde solution or acidulated mercuric chloride solution in areas where soil reaction is usually pH 6.0 or higher. Do not treat seed when potatoes are to be grown in areas where scab has caused little trouble.

1. **Cold Formaldehyde**—1 pt. 40% in 30 gallons water.
   - Soak uncut tubers 1 1/2 hours, then remove and air out thoroughly. This treatment is more effective when sacked tubers are first soaked in water for 2 minutes before soaking them in formaldehyde or mercury solutions. This softens the scab lesions.

2. **Hot Formaldehyde**—3.3 qts. 40% per 100 gallons water.
   - Dip uncut sacked tubers for 3 to 4 minutes in the solution held at 122°-124° F. Stack sacks on end to dry.
   - Potatoes may be cut for planting any time after the sacks have dried.
   - Temperature of the hot solution must be kept within the range indicated to give control of the disease without injuring the tubers.

3. **Acidulated Mercuric Chloride**—6 oz. mercuric chloride plus 1 qt. commercial HCl in 25 gallons water.
   - Soak sacked uncut tubers for 5 minutes, allow to drip and plant immediately, or dry out. This treatment is safe for potatoes planted on sandy and marl soils, but not safe on muck and peat soils. This material is poisonous and corrosive and treated seed should not be eaten or fed to livestock.
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**IRISH POTATO**

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**Early blight**

Nabam-zinc sulfate spray as recommended for control of late blight will also control early blight. See comments on manzate for Homestead and Hastings areas.

**Scab**

Treat seed with hot or cold formaldehyde solution or acidulated mercuric chloride solution in areas where soil reaction is usually pH 6.0 or higher. Do not treat seed when potatoes are to be grown in areas where scab has caused little trouble.

1. **Cold Formaldehyde**—1 pt. 40% in 30 gallons water.
   - Soak uncut tubers 0.5 hours, then remove and air out thoroughly. This treatment is more effective when sacked tubers are first soaked in water for 2 minutes before soaking them in formaldehyde or mercury solutions. This softens the scab lesions.

2. **Hot Formaldehyde**—3.3 qts. 40% per 100 gallons water.
   - Dip uncut sacked tubers for 3 to 4 minutes in the solution held at 1220-1240°F. Stack sacks on end to dry.
   - Potatoes may be cut for planting any time after the sacks have dried.
   - Temperature of the hot solution must be kept within the range indicated to give control of the disease without injuring the tubers.

3. **Acidulated Mercuric Chloride**—6 oz. mercuric chloride plus 1 qt. commercial HCl in 25 gallons water.
   - Soak sacked uncut tubers for 5 minutes, allow to drip and plant immediately, or dry out. This treatment is safe for potatoes planted on sandy and marl soils, but not safe on muck and peat soils. This material is poisonous and corrosive and treated seed should not be eaten or fed to livestock.
Sclerotinia

On marl soils, where sclerotinia has been observed in the previous crop, apply 400 to 600 pounds of cyanamid per acre before planting. It should be evenly distributed and thoroughly mixed with the surface soil.

SWEET POTATO

Seed selection

Many diseases may be reduced by growing enough seed from vine cuttings to produce next year's seed supply. Select hills at digging time which are free from disease, have desirable varietal characteristics and have at least four or five No. 1 potatoes per hill. Seed stock should be free of internal cork, a disease for which there is no other known control. Seed stock should be free from injury. Take special care in digging and maintaining the seed supply, handling the product a minimum number of times.

Plant bed site

Locate the bed where sweet potatoes or tobacco have never been grown or have not been grown within three years. If permanent beds are to be used, remove soil to a depth of 12 inches, drench the bed and frame with a solution of 1 pint of formaldehyde per 15 gallons of water, then replace with new soil.

Seed treatment (Use only one)

**Semenan bel** - 1 pound to \( \frac{3}{2} \) to 8 gallons water for one minute; bed, or dry in the shade.

**Mercuric chloride** - Dissolve 4 ounces in 1 gallon hot water and add to 31 gallons of cold water in a clean wooden container; dip for 8 to 10 minutes and bed. After treating 10 bushels add 1 quart of stock solution (\( \frac{1}{2} \) ounce mercuric chloride per quart water), and add water to 32 gallon mark on container. Repeat for every additional 10 bushels and discard for fresh solution after 50 bushels.

**Spergon (48%)** - 1 pound wettable in 5 gallons water; dip (in and right out), drain and bed.

Plant treatment (Use only one, depending on specific problem.)

**In General** - Dip to soil line (do not wet leaves) in semenan bel, 1 pound per 10 gallons water.

**Stem Rot or Wilt** - Dip base of stem and plant roots or lower end of vine cutting in wettable spergon solution, 1 pound to 8 gallons water.

**Scurf** - Dip base of stem and plant roots in ferbam solution, 1 pound to 5 gallons water.

RADISH

**Downy mildew**

- Sprays:
  - Zineb 4-61/2%
  - Nabam 27%
- Dusts:
  - Zineb 65%
  - 2 lbs.
  - 2 qts. plus 1 lb. zinc sulfate

When weather is favorable for the development of the disease, apply on a twice-weekly schedule.

In the West Coast area it has been observed that the zineb dust may be the most practical approach to achieve adequate coverage. The dust must be directed with considerable force to penetrate this ground-level foliage.

STRAWBERRY

**NURSERY**

**Anthracnose**

- Sprays:
  - Forms of copper that have proved to be
- Dusts:
  - Copper dust 6-7%
satisfactory, diluted to give metallic copper content of 1/2 lbs. plus spreader-sticker.

**Spray:**
- **Leaf spot**
  - Zineb 65% 2 lbs.
  - Nabam 27 1/2% 2 qts. plus 1 lb. zinc sulfate
- **Late blight**
  - Nabam 27 1/2% 2 qts. plus 3/4 lb. zinc sulfate (36%)
  - Zineb 65% 2 lbs.
  - Phygon XL 3/4 lb.
  - Manzate 1 1/2 lbs.
  - Copper 1 1/2-2 lbs. metallic copper

**Dust:**
- Zineb 4-6 1/2%

**FIELD**

**Leaf spot**
- Begin applications when diseases appear; repeat at 7-day intervals until diseases are checked, or oftener if there are daily rains.

**Rhizoctonia bud rot**
- No fungicidal control. Frequent shallow cultivation may give a measure of control.

**SEED BED**

**Dampening-off**
- Fumigation - Apply one pound of methyl bromide per 50 sq. ft. of seedbed area. Soil must be prepared and ready for planting before fumigation. Methyl bromide controls weeds and nematodes as well as damping-off. If seedbed fumigation is not practiced, seed treatments may be beneficial.

**Late blight**
- Nabam 27 1/2% 2 qts. plus 3/4 lb. zinc sulfate (36%)
- Zineb 65% 2 lbs.
- Phygon XL 3/4 lb.
- Manzate 1 1/2 lbs.
- Copper 1 1/2-2 lbs. metallic copper

When late blight is favored by cool, damp weather conditions, begin spraying the plants as soon as they have emerged and repeat at 4 to 7 day intervals until transplanted. Thorough coverage of all above-ground plant surface is imperative. An application just before transplanting is desirable.

Nabam and zineb sprays tend to stunt young plants when used frequently. To avoid this, alternate them with phygon XL, manzate or a copper fungicide.

In the southern part of the state and on the West Coast, copper fungicides will not control late blight. For these areas an alternating nabam and phygon XL or manzate schedule is recommended.

**TOMATO**

**FIELD**

**Late blight**
- Materials and formulas are the same as for "Seed Bed" above.
- Begin applications immediately after plants have become established and repeat at 4 to 7 day intervals until end of harvest. Thorough coverage of all above-ground surface is imperative. Spray is more effective than dust.
- Nabam and zineb are recommended in the southern half of the state. In the other parts of the state where late blight is less severe, copper sprays usually give satisfactory control. In areas and seasons which are not favorable for late blight, increase time interval between applications. In the southern part of the state this is a risky venture because with blight present its spread may become very rapid with the return of weather favorable for its development.

**Early blight**
- Materials and formulas same as for late blight above.
  - Where early blight and late blight occur together, use the schedule recommended for late blight. In some localities and seasons where early blight occurs but late blight is not an important factor, coppers usually give satisfactory control of early blight.
  - In the Homestead, West Coast and Ft. Pierce areas, neither phygon nor coppers
give control of early blight on tomatoes equal to that provided by nabam or zineb.

**Gray leaf spot**  
Materials and formulas same as for late blight above, except phygon XL and copper fungicides not effective.

When late blight is not present, applications at 7-day intervals are usually adequate. Gray leaf spot is not important in all tomato growing areas or in every year. When it occurs it causes extensive damage unless control measures are started on time. If late blight is also present the schedule recommended for late blight should be used.

**Spray:**  
1. Phygon XL 3/4 lb.
2. Bacillus subtilis

**Dust:**  
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Timing of applications appears to be of critical importance. First application should be made before the plants fall over. As many as 6 applications may be necessary for adequate control. No fungicide effective after the disease has become established. Copper fungicides will give a degree of control if applied before the disease appears.

**Bacterial spot**  
Copper, 2 lbs. metallic copper

Copper-containing fungicides have given the most effective control of all approved commercial materials tested. In wet seasons with frequent driving rains they may not give satisfactory control of bacterial spot. Greatest effectiveness is to be expected if the copper spray is applied just before a driving rain occurs.

Copper is not recommended and will not control bacterial spot in the Homestead area.

**Fusarium wilt**  
No chemical control. Use resistant varieties or new land.

**Sclerotinia**  
On marl soils apply cyanamid at the rate of 500-700 lbs. per acre 7-10 days before setting plants in field. Distribute evenly and disk thoroughly after application.

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**WATERMELON**

The importance of anthracnose, downy mildew and gummy-stem blight varies widely from year to year with weather conditions. When a disease appears late little benefit may be derived from spraying or dusting. When disease appears early, subsequent applications of a fungicide are effective in checking further spread. The time of appearance of a disease and weather conditions should serve as a guide as to how often and how many applications should be made. The same fungicide schedule is usually effective for all three diseases.

It has been observed in the West Coast area that nabam may contribute to a cuticle-damage condition of young fruit. Where this is the case nabam might be used while the crop is young; when fruit begins to form it may be advisable to shift to zineb. After fruits have developed skin toughness it may be satisfactory to return to the nabam schedule. It has been noted in the Leesburg area that a spreader-sticker added to the nabam may reduce fruit injury.

**Spray:**

1. Anthracnose  
   - Nabam 27 1/2 lbs. plus 1 lb. zinc sulfate, plus sticker
   - Zineb 65 1/2 lbs. plus sticker

**Dust:**

- Nabam
- Zineb 4-6 1/2 lbs.

Begin applications when runners start to form or when first signs of disease appear. It is important to have coverage on the under side of leaves. Follow with two or three applications at 7 to 10-day intervals. The varieties Congo, Fairfax and 51-27 are resistant to anthracnose.
Downy mildew  
Spray:  
Nabam 27% 2 qts. plus 1 lb. zinc sulfate, plus sticker  
Zineb 65% 2 lbs. plus sticker  
Tribasic copper sulfate, diluted to metallic copper content of 13 lbs., plus sticker  
Apply as given for anthracnose control. Copper is not recommended for the West Coast and Indian River areas.

Gummy stem blight  
Spray:  
Nabam 27% 2 qts. plus 1 lb. zinc sulfate, plus sticker  
Zineb 65% 2 lbs. plus sticker  
Apply as given for anthracnose control.

Wilt  
(no fungicidal control)  
In general, 8 to 10 years between melon crops will reduce the wilt fungus in the soil to a point where land can be used again for planting susceptible varieties. It pays to wait at least two years between crops of watermelons on the same land even when wilt-resistant varieties are grown, (Blacklee, Fairfax, 51-27).  
There is always danger of wilt occurring on new land where drainage water from a diseased field has flowed over the new field, or where cattle have had access to both fields.
## DUST TREATMENTS FOR PREVENTING SEED DECAY AND IMPROVING STAND*

<table>
<thead>
<tr>
<th>CROP</th>
<th>MATERIALS</th>
<th>OZ. / TSPNS.</th>
<th>CROP</th>
<th>MATERIALS</th>
<th>OZ. / TSPNS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bean, lima</td>
<td>Spergon</td>
<td>48% 4  1/3</td>
<td>Eggplant</td>
<td>Zinc oxide</td>
<td>80% 8  1/3</td>
</tr>
<tr>
<td></td>
<td>Thiram</td>
<td>50% 2  1/3</td>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
</tr>
<tr>
<td>Bean, snap</td>
<td>(same as for lima)</td>
<td></td>
<td>Escarole</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Semesan</td>
<td>48% 8  1</td>
</tr>
<tr>
<td>Beet</td>
<td>Thiram</td>
<td>50% 8  1</td>
<td>Lettuce</td>
<td>(same as for escarole)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N.I.Ceresan</td>
<td>5% 8 3/4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broccoli</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
<td>Mustard</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
</tr>
<tr>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
</tr>
<tr>
<td>Brussel Sprouts</td>
<td>(same as for broccoli)</td>
<td></td>
<td>English Pea</td>
<td>Spergon</td>
<td>48% 4  1/3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Thiram</td>
<td>50% 4  1/3</td>
</tr>
<tr>
<td>Cabbage</td>
<td>(same as for broccoli)</td>
<td></td>
<td>Pepper</td>
<td>Zinc oxide</td>
<td>80% 8  1/3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
</tr>
<tr>
<td>Carrot</td>
<td>Thiram</td>
<td>50% 8  1</td>
<td>Spinach</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
</tr>
<tr>
<td></td>
<td>Spergon</td>
<td>48% 12 1/3</td>
<td></td>
<td>Cuprocide</td>
<td>80% 8  1/3</td>
</tr>
<tr>
<td>Cantaloupe</td>
<td>Thiram</td>
<td>50% 2  1/3</td>
<td>Sweet</td>
<td>Thiram</td>
<td>50% 2  1/3</td>
</tr>
<tr>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
<td>Corn</td>
<td>Semesan</td>
<td>48% 6  3/4</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
<td>Tomato</td>
<td>Zinc oxide</td>
<td>80% 8  1/3</td>
</tr>
<tr>
<td></td>
<td>Semesan</td>
<td>30% 6  1/3</td>
<td></td>
<td>Spergon</td>
<td>48% 8  1</td>
</tr>
<tr>
<td>Celery</td>
<td>Cuprocide</td>
<td>80% 8  1/3</td>
<td>Turnip</td>
<td>(same as for mustard)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spergon</td>
<td>48% 12 1/3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cucumber</td>
<td>Thiram</td>
<td>50% 3  1/3</td>
<td>Watermelon</td>
<td>Thiram</td>
<td>50% 4  1/3</td>
</tr>
<tr>
<td></td>
<td>Semesan</td>
<td>30% 5  1/3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Bradenton Station: Not recommended if seedbed fumigated or where environmental conditions favor good germination and early development of the crop. During prolonged periods of cold damp weather, it may be advisable to treat seed of such crops as beans and sweet corn.

Sanford Station: Celery seed treatment is recommended only if seedbed fumigation is not used.

Ft. Pierce Station: Tomato seed treatment is not recommended.

Very truly yours,

F. S. Jamison

Vegetable Crop Specialist

FEHL:ehl
4/2/54
250 copies
Table of recommended control treatments for various pests and diseases in agriculture. The table includes information on crop protection materials, applicators, and recommended treatments for different pests such as bean blight, cabbage root maggot, and cabbage root fly. The text is structured in a tabular format with columns for pests, recommended treatments, and applicators. The table provides a comprehensive guide for farmers to control various pests effectively.