

DISEASE PREVENTION PROGRAM FOR CERTAIN VEGETABLE CROPS

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BEANS: (Snap & Pole)

1. Plant following rye, corn or other grain crop.
2. Deep turn to bury debris and suppress Rhizoctonia damping-off.
3. Use nematicide if needed.
 1. Telone II @ 3 - 4 gals injected beneath the row.
 2. Mocap 10G @ 20 - 26.6 lb (12" band for 36" row)
 3. Mocap EC @ 42.6 - 56.8 fl oz (12" band for 36" row)
4. If Pythium or Rhizoctonia pose a problem use Ridomil Gold PC GR at 12 oz per 1,000 linear feet in-furrow at planting. Terraclor products will control Rhizoctonia only and Ridomil Gold EC and Ultra Flourish will control Pythium only. Quadris can be used at 0.4 - 0.6 fl oz/1,000 row feet in-furrow for Rhizoctonia.
5. Avoid dirting cultivations during hot periods that may promote ashy stem blight.
6. If overhead irrigation is used, water in the morning so that foliage may dry by mid-day.
7. Spray for rust and Alternaria pod stippling with foliar fungicide beginning at early bloom. Chlorothalonil 720 @ 1 3/8 - 3 pt/acre suppresses both rust and Alternaria.
8. Nova @ 4.0 - 5.0 oz can be used when pods begin to develop for rust or Rhizoctonia tip blight (see label).
9. Quadris can be used for most foliar pathogens at 6.2 - 15.4 fl oz/acre.
10. Apply Sclerotinia white mold materials at early bloom **depending on weather conditions and disease pressure.**
 - a. Rovral 4F @ 1.5 - 2.0 pt/acre
 - b. Topsin-M 70W @ 1.5 - 2.0 lb/acre
 - c. Endura 70WG @ 8.0 - 11.0 oz/acre
11. Don't confuse Sclerotinia white mold with Pythium pod blight. Pythium occurs during the summer months when temperatures are relatively high 77-86° F while Sclerotinia white mold is favored by cooler temps (<68° F).

CABBAGE:

1. Purchase disease-free seed and transplants. Inspect plants for black rot.
2. Three-year rotation with any crucifer crop (cabbage, collards, turnips, etc.). Do not plant to field where wild mustard and turnips exist.
3. If overhead irrigation is used, water in the morning so that foliage may dry by mid-day.

CABBAGE cont'd:

4. Incorporate Nemaicur 15G @ 7.3 - 18.4 oz/1,000 row ft or use Telone II @ 3.0 - 4.0 gal/acre for nematodes (36 inch rows).
5. Use Terraclor 75WP in transplant water for summer and fall plantings @ 2 lb/100 gals. water for clubroot and 15 - 20 lb/50 gals for wirestem as soil drench at or immediately after seeding. Ridomil Gold EC @ 1.0 - 2.0 pt/acre can be used to prevent Pythium.
6. Use 1500 lb/acre hydrated lime in clubroot infested fields low in pH.
7. Spray with chlorothalonil 720 @ 1 ½ pt/acre. or Maneb 1.5- 2.0 lb alternated with Ridomil Gold/Bravo @ 1 ½ lbs for Alternaria and downy mildew.
8. Aliette @ 2 - 5 lb is registered for downy mildew. (Do not mix with copper fungicides).
9. Avoid working fields when foliage is wet to inhibit black rot spread. Copper materials are labeled for black rot but will only serve to limit the spread of disease.
10. Rotate or deep turn for Sclerotinia (Raisin Head) control.

CANTALOUPE:

1. Do not follow cucurbit crops (cucumber, cantaloupe, watermelon, & etc.).
2. Destroy litter from previous crop & deep turn.
3. Treat for nematodes with Telone II, EC, Inline or methyl bromide.
4. Purchase disease free transplants (see Bacterial Fruit Blotch Guidelines).
5. If overhead irrigation is used, water in the morning so that foliage may dry by mid-day.
6. Spray as soon as true leaves fully expand or when vines begin to run with chlorothalonil 720 @ 1.5 - 3.0 pt/acre. Topsin M @ 0.5 lb/acre tank-mixed with mancozeb @ 3.0 lb/acre can be rotated with chlorothalonil if anthracnose is a problem. Gavel at 2.0 lb/acre or Tanos @ 8.0 oz/acre can be used for downy mildew. Tanos must be tank-mixed with mancozeb or chlorothalonil.
7. Quadris @ 11.0 - 15.4 oz/acre for gummy stem blight, powdery mildew, anthracnose and Alternaria. Gummy stem blight resistance to Quadris is widespread in Georgia therefore Quadris should not be relied on for control of gummy stem blight.
8. Flint @ 1.5 - 2.0 oz/acre, Nova @ 4.0 - 5.0 oz/acre, or Procure @ 4.0 - 8.0 oz for powdery mildew. You may wish to tank-mix Nova and/or Procure with chlorothalonil or mancozeb to broaden disease control spectrum. Sulfur is also effective on powdery mildew but may cause foliar burn.
9. Cabrio @ 8.0 - 16.0 oz/acre is very effective on downy mildew and has good control of Alternaria, anthracnose and powdery mildew. However, the mode of action is the same as Quadris so Cabrio cannot be relied on for gummy stem blight control.
10. Pristine @ 12.5 - 18.5 oz/acre is very effective against gummy stem blight and should be applied preventively at beginning fruit set & before disease onset. Suppression of downy and powdery mildew can be expected.

NOTE: ALWAYS ROTATE TO EITHER CHLOROTHALONIL OR Maneb/Mancozeb

CANTALOUPE cont'd

PRODUCTS FOLLOWING NO MORE THAN TWO SPRAYS OF QUADRIS, FLINT, CABRIO, PROCURE OR NOVA OR ONE SPRAY OF PRISTINE.

11. Ridomil Gold, Ultra Flourish (both contain mefenoxam), and Acrobat are the only labeled materials that may be effective on crown rot (*Phytophthora capsici*). Sprays for crown rot will only be effective if applications take place before or at the very onset of disease symptoms.

CARROTS:

1. Plant on well drained soil.
2. Use a good rotation (do not plant following tobacco).
3. Deep turn soil.
4. Overhead irrigate in the morning so foliage may dry by mid-day.
5. Treat for nematodes:
 - Telone II @ 9-12 gals/acre,
 - Telone C-17 @ 10.3 to 17.1 gals/acre,
6. Soil disease control:
 - Ridomil Gold EC @ 1 to 2 pt incorporated in top 2 inches for *Pythium*.
7. Spray for foliage diseases, if they occur:
 - chlorothalonil @ 1 ½ to 2 pt/acre (Alternaria + Cercospora)
 - Quadris @ 9.2 - 20.3 fl oz/acre (Alternaria + Cercospora)
 - Cabrio @ 8.0 - 12.0 oz/acre (Alternaria + Cercospora)
 - Rovral @ 1 to 2 pt/acre (Alternaria and Sclerotinia)
 - Ridomil Gold/Bravo @ 1 ½ to 2 lbs/acre (Alternaria, Pythium, Cercospora)
 - Pristine @ 8.0 - 10.5 oz/acre (Alternaria, Cercospora)
 - Endura @ 4.5 oz/acre (Alternaria)
8. Both Quadris and Pristine are suppressive against Southern stem rot (*Sclerotium rolfsii*).
9. Bacterial leaf blight is very similar in appearance to Alternaria leaf blight but will not respond to fungicide or copper sprays.

COLLARDS AND KALE:

1. Do not plant following other crucifer crops or land where wild turnips are present. (Use a three year rotation).
2. If transplanting, make sure the plants are free of black rot.
3. Bottom plow using coverboards to direct litter to the bottom of the furrow.
4. Overhead irrigate in the morning so foliage may dry by mid-day.
5. Use Terraclor 75WP in transplant water for summer and fall plantings @ 2 lb/100 gals. water for clubroot and 15 - 20 lb/100 gals of Terraclor 75WP as soil drench at or immediately after seeding for wirestem.
6. Begin spray program as soon as leaves are about the size of a dime.
7. Use copper containing materials to reduce the spread of black rot.
8. Maneb 80W, Maneb 75DF, and Manex are labeled for collards and kale for foliar disease control (see supplemental labels).
9. Do not irrigate from a water source where field drainage from a previous crucifer crop was grown the year before.

COLLARDS & KALE cont'd

10. Aliette is registered for downy mildew at 2 - 5 lb/acre. (Do not mix with copper fungicides).
11. Quadris @ 6.2 - 15.4 fl oz may now be used for Alternaria leaf spot and pale spot and should be rotated with Maneb.

CUCUMBERS:

1. Do not follow cucurbit crops (cucumber, cantaloupe, watermelon, & etc.).
2. Destroy litter from previous crop and deep turn.
3. Treat for nematodes, if root-knot or reniform are present.
 - a. Fumigants (Telone II, Telone EC or Inline, see labels)
 - b. Non-fumigants (Mocap 10G, Mocap EC, Vydate).
4. Overhead irrigate in the morning so foliage may dry by mid-day.
5. Shape beds for good drainage.
6. Spray program should begin as soon as 1st true leaves fully expand.
7. Spray seedlings and bed surface after last cultivation and just before vines start to run with Quadris @ 12-15 oz/acre for Rhizoctonia belly rot.
8. Spray every 7 to 10 days with Topsin M @ 8 oz + Maneb or mancozeb (see label) alternated with chlorothalonil (1.5 - 2.0 pt/acre) or Ridomil Gold/Bravo @ 1 ½ - 2 lb/acre. Gavel or Tanos may be used to suppress downy mildew. Tanos must be tank-mixed with mancozeb or chlorothalonil.
9. Quadris @ 11- 15.4 oz/acre for gummy stem blight, powdery mildew, anthracnose, and Alternaria. Gummy stem blight resistance to Quadris is widespread in Georgia therefore Quadris should not be relied on for control of gummy stem blight.
10. Flint @ 1.5 - 2.0 oz/acre, Procure @ 4.0 - 8.0 oz, or Nova @ 4.0 - 5.0 oz/acre for powdery mildew. You may wish to tank-mix Nova and or Procure with chlorothalonil or mancozeb to broaden disease control spectrum. Sulfur is also effective on powdery mildew but may cause foliar burn.
11. Cabrio @ 8.0 - 16.0 oz/acre is very effective on downy mildew and has good control of Alternaria, anthracnose and powdery mildew. However, the mode of action is the same as Quadris so Cabrio cannot be relied on for gummy stem blight control.
12. Pristine @ 12.5 - 18.5 oz/acre is very effective against gummy stem blight and should be applied preventively at beginning fruit set & before disease onset. Suppression of downy and powdery mildew can be expected.

NOTE: ALWAYS ROTATE TO EITHER CHLOROTHALONIL OR Maneb/Mancozeb PRODUCTS FOLLOWING NO MORE THAN TWO SPRAYS OF QUADRIS, FLINT, CABRIO, PROCURE OR NOVA OR ONE SPRAY OF PRISTINE.

13. Ridomil Gold, Ultra Flourish (both contain mefenoxam), and Acrobat are the only labeled materials that may be effective on crown rot (*Phytophthora capsici*). Sprays for crown rot will only be effective if applications take place before or at the very onset of disease symptoms.

EGGPLANT:

1. Treat with NemaCur 15G @ 13.4 lb/acre (36" rows) or Telone products for nematodes
2. Drench with Captan 50W (3lbs/100 gals) in plant beds before transplanting.
3. Avoid areas where southern blight has been a problem.
4. Several copper compounds are available for use on eggplant to suppress foliar pathogens. Check the GA Pest Control Handbook for specific materials and rates.
5. Maneb and Manex are also registered for use on eggplant. Use 1.5-2.0 lb/acre of Maneb and 1.2-1.6 qt/acre of Manex. These may be tank mixed with copper compounds for broad spectrum disease management. An example which is often used is 2.0 lbs Maneb mixed with 2.0 lbs Kocide 101 per acre. Maneb and Manex have a 5 day pre-harvest interval.
6. The label for copper and Maneb and Manex sprays indicates to begin applications prior to disease development and maintain a spray schedule of 7-10 days. I would recommend a 7 day schedule during periods of cool, wet, overcast weather. A 10 day schedule may be used under very hot, dry conditions.
7. Quadris @ 6.2-15.4 fl oz/acre and Cabrio @ 8.0 - 16.0 oz/acre are labeled for powdery mildew and anthracnose. Rotate both with Maneb or Manex for resistance management.
8. Endura is labeled for Alternaria @ 2.5 - 3.5 oz/acre and may suppress other foliar diseases.

LIMA BEAN:

1. Plant following rye, corn or other grain crop.
2. Deep turn to bury debris and suppress Rhizoctonia damping-off.
3. Use nematicide if needed.
 1. Telone II @ 3 - 4 gals injected beneath the row.
 2. Mocap 10G @ 20 - 26.6 lb (12" band for 36" row)
 3. Mocap EC @ 42.6 - 56.8 fl oz (12" band for 36" row)
4. If Pythium or Rhizoctonia pose a problem use Ridomil Gold PC GR at 12 oz per 1,000 linear feet in-furrow at planting. Terraclor products will control Rhizoctonia only and Ridomil Gold EC and Ultra Flourish will control Pythium only. Quadris can be used at 0.4 - 0.6 fl oz/1,000 row feet in-furrow for Rhizoctonia.
5. If overhead irrigation is used, water in the morning so that foliage may dry by mid-day.
6. Quadris can be used for most foliar pathogens at 6.2 - 15.4 fl oz/acre.
7. Apply Sclerotinia white mold materials at early bloom **depending on weather conditions and disease pressure.**
 - a. Rovral 4F @ 1.5-2.0 pt/acre
 - b. Topsin-M 70W @ 1.5-2.0 lb/acre (also for **anthracnose**)
 - c. Endura 70WG @ 8.0 - 11.0 oz/acre
8. Don't confuse Sclerotinia white mold with Pythium pod blight. Pythium occurs during the summer months when temperatures are relatively high 77-86° F while Sclerotinia white mold is favored by cooler temps (<68° F).

ONIONS: (Direct Seeded & Transplants)

1. Plant following rye or other grain crop. Use a 3-year rotation.
2. Bottom plow to direct litter to bottom of furrow.
3. Treat for nematodes if root-knot or sting are present. Use Telone II @ 9 - 15 gal/acre or Telone C-17 @ 10.3 to 17.1 gals/acre (Broadcast injection).
NOTE: Observe the 3-week waiting period.
4. Use Telone C-17 @ 10.3 to 17.1 gals/acre (Broadcast injection) or metam sodium @ 37.5 - 75 gals/acre (soil incorporated or chemigated) for pink root.
5. Direct seed from a reliable seed source (beds or field).
6. Spray beds or rows with Ridomil Gold EC preplant to reduce damping-off if Pythium may be a problem, specifically if you don't fumigate.
7. Overhead irrigate in the morning so foliage may dry by mid-day.
8. Fungicide spray schedule may start on seed-beds if weather conditions favor disease development. Spray with chlorothalonil 720 @ 1.5 - 3 pt/acre (see label) in enough water to wet the plants. Alternate or mix chlorothalonil with mancozeb and copper products **depending on disease pressure and presence of bacterial pathogens**. Use foliar sprays on a 7-10-14 day schedule depending on weather conditions and crop growth. Rotate with Rovral at 1.5 pt/acre for suppression of purple blotch, Botrytis leaf blight, and Stemphylium. Quadris @ 6.2 - 15.4 fl oz/acre as well as Cabrio @ 8.0 - 12.0 oz/acre are now labeled for purple blotch but have shown efficacy against Stemphylium (especially Quadris). Pristine is a new material that is very effective against purple blotch, Stemphylium and Botrytis leaf blight and should be used at 14.5 oz/acre. Endura is effective against purple blotch and Botrytis leaf blight at 6.8 oz and is an active component of Pristine. **One proposed fungicide schedule is to use Quadris or Cabrio alternated with Bravo until mid-March and then replace the Quadris or Cabrio with either Pristine, Rovral, or Endura.**
9. Switch @ 11.0 - 14.0 oz/acre is now labeled for control of Botrytis leaf blight and purple blotch (suppresses Stemphylium). Please note the **12 month** plant back restriction on the label.
10. Ridomil Gold/Bravo and Acrobat may be used when downy mildew is a threat.

PEPPER:

1. Purchase certified transplants or grow own from seeds which have been checked by the Georgia Department of Agriculture for bacterial spot.
2. TSWV resistant lines are now available if desired.
3. Plant following rye or other grain crop.
4. Deep turn soil.
5. Treat for nematodes if needed. Telone II& EC, Inline, and methyl bromide for Bell and Non-Bell and Nemacur 15G @ 9 - 13.3 lb (36 inch rows) for Non-Bell.
6. Use Terraclor 75WP in transplant water @ 3 lb/100 gals for stem rot.
7. Spray with copper tank mixed with Maneb 75 DF, 80 WP and Manex (see label) immediately following transplanting for bacterial spot or use bacterial spot resistant cultivars.

Pepper cont'd

8. Spray every 7 to 10 days throughout the growing season.
9. Quadris and Cabrio are labeled for both bell and non-bell pepper for control of Anthracnose and powdery mildew. Rotate both with Maneb products for resistance management. Endura is labeled for Alternaria @ 2.5 - 3.5 oz/acre.
10. For *Phytophthora capsici*, spray 3-4 applications of Ridomil Gold Copper 2.5 lb every 10-14 days. Ridomil Gold EC may be applied to the soil. Tanos is labeled @ 8.0 - 10.0 oz/acre for the foliar phase of Phytophthora crown rot. See label for specific guidelines regarding Tanos. Pepper lines resistant to *Phytophthora capsici* have shown promise in North Carolina ('Aristotle', 'Paladin', 'Consul', 'Reinger' and some Harris Moran numbered varieties).

PUMPKINS:

1. Do not follow cucurbit crops (cucumber, cantaloupe, watermelon, and etc.).
2. Destroy litter from previous crop and deep turn.
3. Treat for nematodes. Fumigant (Telone II, 12 gal/acre broadcast rate in row).
4. Shape beds for good drainage.
5. Overhead irrigate in the morning so foliage may dry by mid-day.
6. Spray program should begin when vines begin to run.
7. Use Manex or chlorothalonil on a 7 - 14 day schedule up until fruit set before using Quadris, Nova, Procure, Gavel (downy mildew), Tanos (downy mildew), Cabrio, or Flint. Tanos must be tank-mixed with mancozeb or chlorothalonil.
8. Quadris @ 11.0- 15.4 oz/acre for gummy stem blight, powdery mildew, Plectosporium, anthracnose, and Alternaria. Gummy stem blight resistance to Quadris is widespread in Georgia therefore Quadris should not be relied on for control of gummy stem blight.
9. Flint @ 1.5 - 2.0 oz/acre, Procure @ 4.0 - 8.0 oz/acre or Nova @ 4.0 - 5.0 oz/acre for powdery mildew. You may wish to tank-mix Nova and/or Procure with chlorothalonil or mancozeb to broaden disease control spectrum. Sulfur is also effective on powdery mildew but may cause foliar burn.
10. Cabrio @ 8.0 - 16.0 oz/acre is very effective on downy mildew and has good control of Alternaria, anthracnose, Plectosporium and powdery mildew. However, the mode of action is the same as Quadris so Cabrio cannot be relied on for gummy stem blight control.

NOTE: ALWAYS ROTATE TO EITHER CHLOROTHALONIL OR Maneb/Mancozeb PRODUCTS FOLLOWING NO MORE THAN TWO SPRAYS OF QUADRIS, FLINT, CABRIO, PROCURE OR NOVA OR ONE SPRAY OF PRISTINE.

11. Ridomil Gold, Ultra Flourish (both contain mefenoxam), and Acrobat are the only labeled materials that may be effective on crown rot (*Phytophthora capsici*). Sprays for crown rot will only be effective if applications take place before or at the very onset of disease symptoms.

SOUTHERN PEAS:

1. Plant behind corn or other grain crop.
2. Deep turn using coverboards to bury litter.
3. Use fungicide/insecticide treated seeds.
4. Use Ridomil Gold PC at seeding to prevent damping-off. Quadris can be used at 0.4 - 0.6 fl oz/1,000 row feet in-furrow for Rhizoctonia.
5. Purchase virus-resistant or virus-free seeds.
6. Treat for nematodes. (Telone II at same rate for beans.)
7. Spray with Top Cop with Sulfur @ 2 qt if leaf diseases appear.
8. Quadris can be used for most foliar pathogens at 6.2 - 15.4 fl oz/acre.

SQUASH:

1. Do not follow cucurbit crops (cucumber, cantaloupe, watermelon, and etc.).
2. Destroy litter from previous crop and deep turn.
3. Treat for nematodes. Fumigant (Telone II, 12 gal/acre broadcast rate in row).
4. Shape beds for good drainage.
5. Overhead irrigate in the morning so foliage may dry by mid-day.
6. Spray program should begin when vines begin to run.
7. Use Manex or chlorothalonil on a 7 - 14 day schedule up until fruit set before using Quadris, Nova, Procure, Gavel (downy mildew), Cabrio, or Flint.
8. Quadris @ 11.0- 15.4 oz/acre for powdery mildew, and Alternaria.
9. Flint @ 1.5 - 2.0 oz/acre, Procure @ 4.0 - 8.0 oz/acre or Nova @ 4.0 - 5.0 oz/acre for powdery mildew. You may wish to tank-mix Nova and/or Procure with chlorothalonil or mancozeb to broaden disease control spectrum. Sulfur is also effective on powdery mildew but may cause foliar burn.
10. Cabrio @ 8.0 - 16.0 oz/acre is very effective on downy mildew and has good control of Alternaria, anthracnose, and powdery mildew. Rotate Cabrio with Gavel @ 2.0 lb/acre or Tanos @ 8.0 oz/acre for resistance management. Tanos must be tank-mixed with mancozeb or chlorothalonil.
11. Pristine is a new material that should suppress both powdery and downy mildew at rates of 14.5 - 18.5 oz/acre.

NOTE: ALWAYS ROTATE TO EITHER CHLOROTHALONIL OR Maneb/Mancozeb PRODUCTS FOLLOWING NO MORE THAN TWO SPRAYS OF QUADRIS, FLINT, CABRIO, PROCURE OR NOVA or ONE SPRAY OF PRISTINE.

12. Ridomil Gold, Ultra Flourish (both contain mefenoxam), and Acrobat are the only labeled materials that may be effective on crown rot (*Phytophthora capsici*). Sprays for crown rot will only be effective if applications take place before or at the very onset of disease symptoms.

SWEET CORN

1. Leaf blights including Helminthosporium and Rust. EBDC examples: Dithane, Penncozeb. Chlorothalonil products = Bravo, Echo and Equus. Tilt is a DMI fungicide which is recommended for control of corn foliar diseases. Quadris @ 6.2 - 9.2 fl oz/acre is labeled for rust.

TOMATO

1. Purchase certified seed or transplants.
2. Use TSWV resistant varieties if appropriate, however, resistance has been breaking down in some areas.
3. Plant tomatoes behind grain crops such as corn, wheat or rye if possible.
4. Avoid fields with a history of bacterial wilt.
5. Treat for nematodes if needed. (Telone II, EC, Inline, methyl bromide)
6. Use 3 -5 lb of Terraclor 75WP per 100 gallons of water to suppress southern blight (*Sclerotium rolfsii*).
7. Do not prune or string tomatoes when plants are wet.
8. Fungal and bacterial diseases may be managed with the following compounds given that the spray delivery system provides good coverage.
 - A) Chlorothalonil - Bravo, Echo, Equus
 - B) Terranil Cu - chlorothalonil and copper premix
 - C) Ridomil Gold Copper - Ridomil Gold+ copper
 - D) EBDC's - Dithane, Manzate, Maneb, Mancozeb, Pencozeb
 - E) ManKocide - Mancozeb + copper (primarily bacterial spot, speck)
 - F) Quadris - mainly controls Early Blight, Late Blight, Septoria
 - G) Ridomil Gold MZ - (primarily for Late Blight)
 - H) Ridomil Gold/ Bravo - Ridomil Gold + chlorothalonil
 - I) Cabrio - most foliar diseases
 - J) Acrobat - late blight
 - K) Gavel - late blight and early blight
 - L) Actigard - bacterial spot and speck
 - M) Endura - Early blight and Botrytis fruit rot
 - N) Tanos - Early blight, target spot, Late blight, Anthracnose, Gray mold

Use fungicides every 7-10 days depending on disease pressure, weather conditions and plant growth rate.
9. Avoid transmitting Tobacco Mosaic Virus (TMV) to tomatoes by not using tobacco products in or near tomato fields.
10. Isolate fields from crops that harbor white flies which can transmit Tomato Yellow Leaf Curl Virus (TYLCV) and other gemini viruses. If TYLCV is identified, rogue all infected plants to reduce secondary spread. Examples of whitefly harboring crops: cherry tomato, cabbage, cucurbits, and potatoes.
11. Use calcium and boron sprays to help prevent blossom end rot.
12. Control insects which may cause physical damage and transmit virus diseases. Examples: Aphids, thrips, whiteflies.

TURNIPS AND MUSTARD:

1. Do not plant following other crucifer crops. (Use a three year rotation).
2. Bottom plow using coverboards to direct litter to the bottom of the furrow.
3. Begin spray program as soon as two or more true leaves appear.
4. Aliette may be used on mustard for downy mildew. (Do not mix with copper fungicide).
5. Manex, Maneb 80W and Maneb 75DF are labeled for turnips and mustard (see supplemental label).
6. Quadris @ 6.2 - 15.4 fl oz may now be used for Cercospora and Alternaria and should be rotated with Maneb products.
- _____ 7. Cabrio @ 8.0 - 16.0 oz is now labeled for turnips only and is excellent on Cercospora and should be rotated with Maneb products.

WATERMELON:

1. Plant to "new ground" if possible; if not, use:
 - a. Pasture - 1st choice
 - b. Grain - 2nd choice
 - _____ c. Soybeans - 3rd choice
 - d. Peanuts - 4th choice
 - e. Melons - 5th choice
2. Purchase western grown seeds.
3. Purchase disease free transplants with resistance to anthracnose and Fusarium wilt. Few seedless varieties have Fusarium wilt resistance.
4. Deep turn soil.
5. Treat for nematodes (if needed).
6. Overhead irrigate in the morning so foliage may dry by mid-day.
7. Spray as soon as true leaves fully expand or when vines begin to run with chlorothalonil 720 @ 1.5 - 3.0 pt/acre. Topsin M@ 0.5 lb/acre tank-mixed with mancozeb @ 3.0 lb/acre can be rotated with chlorothalonil if anthracnose is a problem. Gavel at 2.0 lb/acre OR Tanos @ 8.0 oz can be used for downy mildew. Tanos must be tank-mixed with mancozeb or chlorothalonil.
8. Quadris @ 11.0 - 15.4 oz/acre for gummy stem blight, powdery mildew, Anthracnose and Alternaria. Gummy stem blight resistance to Quadris is widespread in Georgia therefore Quadris should not be relied on for control of gummy stem blight.
9. Flint @ 1.5 - 2.0 oz/acre, Nova @ 4.0 - 5.0 oz/acre, or Procure @ 4.0 - 8.0 oz for powdery mildew. You may wish to tank-mix Nova and/or Procure with chlorothalonil or mancozeb to broaden disease control spectrum. Sulfur is also effective on powdery mildew but may cause foliar burn.
10. Cabrio @ 8.0 - 16.0 oz/acre is very effective on downy mildew and has good control of Alternaria, anthracnose and powdery mildew. However, the mode of action is the same as Quadris so Cabrio cannot be relied on for gummy stem blight control.
11. Pristine @ 12.5 - 18.5 oz/acre is very effective against gummy stem blight and should be applied preventively at beginning fruit set & before disease

WATERMELON cont'd

onset. Suppression of downy and powdery mildew can be expected with Pristine.

NOTE: ALWAYS ROTATE TO EITHER CHLOROTHALONIL OR Maneb/Mancozeb PRODUCTS FOLLOWING NO MORE THAN TWO SPRAYS OF QUADRIS, FLINT, CABRIO, PROCURE OR NOVA or ONE SPRAY OF PRISTINE.

12. Ridomil Gold, Ultra Flourish (both contain mefenoxam), and Acrobat are the only labeled materials that may be effective on crown rot (*Phytophthora capsici*). Sprays for crown rot will only be effective if applications take place before or at the very onset of disease symptoms.
13. Avoid growing watermelons past July 15th as disease problems (mainly viruses and gummy stem) are almost impossible to control.

ATTENTION!
Pesticide Precautions

1. Observe all directions, restrictions and precautions on pesticide labels. It is dangerous, wasteful and illegal to do otherwise.
2. Store all pesticides in original containers with labels intact and behind locked doors. "KEEP PESTICIDES OUT OF THE REACH OF CHILDREN."
3. Use pesticides at correct label dosage and intervals to avoid illegal residues or injury to plants and animals.
4. Apply pesticides carefully to avoid drift or contamination of non-target areas.
5. Surplus pesticides and containers should be disposed of in accordance with label instructions so that contamination of water and other hazards will not result.
6. Follow directions on the pesticide label regarding restrictions as required by State or Federal Laws and Regulations.
7. Avoid any action that may threaten an Endangered Species or its habitat. Your County Extension Agent can inform you of Endangered Species in your area, help you identify them, and through the Fish and Wildlife Service identify actions that may threaten Endangered Species or their habitat.

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Plant Pathology-1

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