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1998 Greenhouse Tomato Short Course

Dr. Rick Snyder, Vegetable Specialist

Greenhouse tomato growers, and those just thinking about getting in to this type of business, should plant on attending the 8th annual Greenhouse Tomato Short Course.

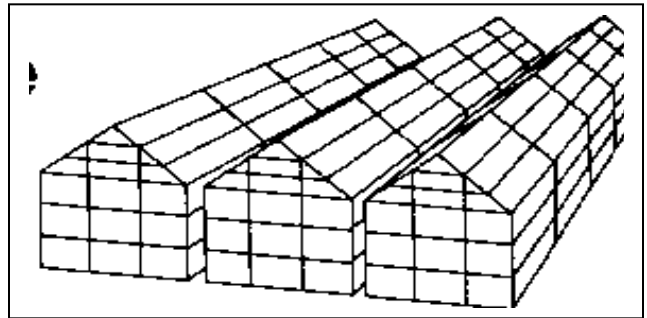


This year, the 2-day training on how to grow this crop will be at the Mississippi Agriculture & Forestry Museum, 1150 Lakeland Drive, Jackson, Mississippi, in the Country Music Hall of Fame Building, on March 12 & 13 (Thursday and Friday).

An excellent slate of speakers have been assembled to assist growers in all aspects of greenhouse tomato production. The special guest speaker this year will be Dr. Mirza of Edmonton, Canada, a world famous researcher and speaker on greenhouse tomato nutrition and physiology.

New this year will be an Advanced Session on Saturday morning. For this session, it is recommended that growers have at least 5 years of experience with this crop. The Advanced Session will have a separate registration fee.

If you have not received a direct mailing already, and want more information, call (601) 892-3731 or your local Mississippi County Extension Office. Your County Ag Agent can give you a photocopy of the entire Short Course packet.



For your convenience, an Agenda and Registration Form are included at the end of this issue.

I hope to see many of you on March 12 to 14.

Greenhouse Aphid Control

Dr. J. Pat Harris, Extension Entomologist

Aphids (plant lice) are small, soft-bodied insects that vary in color from pink to yellow to orange or black. They suck plant juices causing leaves to curl and turn yellow. They may also inject poisonous saliva or disease-causing organisms during feeding. They may cause a failure of bloom set in some



vegetable crops. These insects secrete "honeydew" that harbors sooty

mold fungus which can further spoil tomatoes. Aphid-borne virus infection from surrounding vegetation and gardens is a major reason for yield reduction in the fall.

Care must be taken to eliminate aphids and other insects close to the greenhouse (at least 100 feet). Control them by using spray applications of **malathion, thiodan, pyrellin or M-pede 49 EC**. Refer to individual product labels for crop registration, rates, usages, and precautions.



Control of Leaf Feeding Caterpillars

Dr. J. Pat Harris, Extension Entomologist



Leaf feeding caterpillars, including loopers, imported cabbage worms, and diamondback moth larvae infest a number of our leafy vegetable crops. These include broccoli, cabbage, cauliflower, collards, mustard, and turnips.

Loopers are pale green “measuring” worms with only two pairs of prolegs. They have light colored stripes down their backs and are up to 1 inch long. They are one of the more difficult caterpillars to control. Imported cabbage worms are velvety green in color and may measure up to 1 1/4 inches long. They feed primarily on the undersides of leaves, producing ragged holes, and bore into cabbage heads. Diamondback moth larvae

may be hard to find. They feed on the undersides of leaves of older plants and in the buds of young plants. They are greenish or cream colored and about 3/8 inch long. When disturbed, the larvae will hang suspended by a silk strand. This insect can be very difficult to control, especially where resistance problems exist.

Loopers, imported cabbage worms, and diamondback moth larvae feeding on broccoli, cabbage, or cauliflower may be controlled with label rates of *Lannate 1.8 SL, *Pounce 3.2 EC, *Ambush 2 EC, Endosulfan 3 EC, Endosulfan 50 WP, or formulations of Bacillus thuringiensis (B.T.) (e.g., dipel, thuricide, javelin, cutlass, etc.). Directed sprays (drop nozzles) applying 25-40 gallons of water per acre should be adequate for coverage. If larvae are difficult to control, mix B.T. with one of the other recommended materials at label rates and apply to foliage.

Loopers, imported cabbage worms and diamondback moth larvae feeding on collards may be controlled with label rates of *Lannate 1.8 SL, *Methyl Parathion 4 EC, Endosulfan 3 EC, Endosulfan 50 WP, or formulations of Bacillus thuringiensis.

Loopers and imported cabbage worms feeding on mustard and turnips may be controlled with label rates of *Lannate 1.8 SL, Malathion 5 EC, and formulations of Bacillus thuringiensis. For best control, apply when worms are small.

Spreader-stickers added to spray will be helpful with control of insects attacking vegetables with waxy leaves. Timing and coverage of insecticide sprays are the two most important factors in controlling insects attacking vegetables. Refer to labels for rates, usages, and precautions.

*Restricted pesticides



Use the "Jar Test" to Check Spray Tank Compatibility

Dr. Frank Killebrew, Extension Plant Pathologist

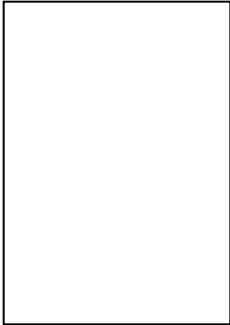
As we approach the 1998 growing season for field production of many commercial vegetables in Mississippi, it's important to start thinking about time and money saving techniques which can be used in your program.

One such technique is tank mixing of pesticides such as fungicides and insecticides. This can save time, labor, and money over applying each material separately, but obviously the technique is valuable only if the pesticides are tank mix compatible and non- phytotoxic.

Additionally, the desired placement, timing, and delivery rate should be the same for each pesticide. Since not all tank mixes are safe, there are a few things to

check out ahead of time to avoid problems. First, check out a spray compatibility chart (refer to the chart published by the "American Vegetable Grower," or "American Fruit Grower") for the combination you have in mind. According to this chart, some pesticide combinations are definitely incompatible, e.g., wettable sulfur fungicide and Lorsban insecticide, captan and oils, as well as other fungicide/insecticide combinations. If you do not have a chart and are not sure about compatibility, read the labels of the products involved for any mixing precautions or restrictions.

If you still aren't certain, check your combination for compatibility with the "JAR TEST." Remember, "compatibility" only means that the products in a mixture neither separate nor are altered by chemical interaction. It does not guarantee that the mixture is safe to your plants. Thus, it's a good idea to conduct small scale phytotoxicity tests with compatible mixtures and observe plants a few days prior to large scale use. Look for symptoms of burn, leaf discoloration, or other symptoms which don't appear to be normal. Here's how you "Jar Test" to check out spray tank compatibility.



Equipment Needed:

* Clean, clear quart jar with a watertight lid

- * Measuring spoons, 5 cc disposable syringes, several cups
- * Squeeze bottle filled with water
- * Small amount of each product to be used in the mix
- * Appropriate safety equipment for the products to be mixed

wettable dry granules (WDG), soluble powders (SP), soluble liquids (SL), and emulsifiable concentrates (EC). Replace cover and shake 5-10 seconds after each addition.

- * Premix wettable powders in a cup with just enough water from squeeze bottle to make a slurry.

Product Measurement:

The amount of product to use per quart should be directly proportional to its rate per 100 gallons. The following equivalents are adequate for compatibility testing.

<u>Rate/100 Gallons</u>	<u>Equivalent</u>
<u>Rate/Quart</u>	

Liquids

4 fl oz	1 cc
1 pt	5 cc
1 qt	10 cc
1 gal	38 cc

Powders

1/2 lb	1/4 tsp
1 lb	1/2 tsp
2 lb	1 tsp

Testing Procedure:

- * Fill the quart jar one-half full of water (use water from the same source that you would use for application).
- * Add products, one at a time, in the following order: wettable powders (WP) or

- * Premix emulsifiable concentrates with water in a cup at 2:1 or 1:1 ratio.
- * Fill jar to 1-2 inches from top, shake again.
- * If a spreader/sticker will be used, add it now and shake.
- * Watch the mix for 5 minutes for signs of change, i.e., precipitation, aggregation, gel formation, oil scum, oil globules, or separation that does not re-mix readily when shaken. If no problem occurs, go on to the next step.
- * Allow the mix to sit for 30 minutes, then observe the mix again for change (separation is only a problem if the mix cannot be easily be re-suspended).

If no reaction is noted after 30 minutes, you have a "compatible mixture." If a reaction does occur, a tank mix obviously would not be advisable. On the mixtures you find to be compatible, your next step should be to apply the mixture to a few of each of the test plants you wish to use the mix on.

Note: The "jar test" procedure is also applicable for pesticide mixtures used in pest management programs for greenhouse vegetable crops.