Management of Tomato Insects

Powell Smith, Extension Associate
Lexington, SC
Whiteflies

- Wingless immatures; Winged adults.
- Eggs are laid on the bottoms of leaves.
- 1st stage larvae move, later stages and pupae are fixed to the under-surface of leaf.
- From 21 to 60 days to complete life cycle.
Plant Hosts of Whiteflies

- Whiteflies have a wide host range - many weeds, crops, and ornamentals.
- Cotton is a preferred host of WF’s as are other members of the hibiscus family like hibiscus and okra.
- Melons, squash, cucumbers, tomatoes, peppers, eggplants, and cole crops can be hosts for WF’s.
Management

- Natural enemies will provide some control if virus or honeydew aren’t problems. Death of natural enemies will result in a resurgence problem.
- Tank mixes of pyrethroids and OP’s are effective but a last resort due to resistance problems and effect on natural enemies.
- Rotate classes of insecticides and use physical agents.
- Combine chemical, cultural, and biological control.
Many MoA’s for Whitefly

- Neonicotinoid materials – effective, soil application is easier on beneficials. Foliar spray will damage honey bees, fairly short PHI’s; systemic. (4)*
  - Most have foliar and soil applied forms.
  - Resistance is an issue now.
- Pyriproxyfen (Knack®) - insect growth regulator. (7C)
- Buprofezin (Courier®) - IGR (chitin synthesis inhibitor). (16)
- Pymetrozine (Fulfill®) – aphids; WF suppression only. (9B)*
  - Cross-resistance noted in whitefly only not aphids.
- Spiromesifen (Oberon®) - will control mites as well. (23)
- Chlorantraniliprole (Coragen®) – suppressive against SLWF.
- Five different IRAC classes but (*) indicates cross-resistance; phi’s vary.
Newer Chemistry

- **Sivanto® (4D)** - a ‘bee safe’ material; can suppress tomato yellow curl virus.
  - Can be soil applied; suppressive against chili thrips.
- **Verimark® (28)** – needs 1 – 3 days to be absorbed to be active against whitefly.
  - Suppression of foliage-feeding thrips.
- **Movento® (23)** – has broad and russet mite activity.
  - Suppression of thrips.
- **Closer® (4C)** – high rate against whitefly.
  - Suppression of thrips.
Use an adulticide when adults are first noted or are prevalent on an infested crop.

After nymphs are noted, growth regulator-type materials should be applied; tank mixes for both.

Some growth regulators have little effect on adults other than to suppress egg laying.

Rotate physical materials, contact, and systemic materials.

Rotate chemical classes!

Translaminar uptake is important, because the whitefly spends most of its time under the leaf.
Thrips Biology

- Thrips are small insects with feather-like wings.
  - They feed by rasping away the fruit or leaf surface.
  - Their eggs are inserted just under the surface of the leaf or fruit.
  - Immature thrips look similar to adults without wings.

- Thrips feed on flowers or foliage of many weeds; they move into the crop when these weeds age.
  - There can be continuous movement back and forth between weeds and crops through the season.

- Thrips can vector virus diseases such as TSWV.
  - Weeds act as the reservoir for the virus.
A thrips and thrips damage on tomato.

J. E. Funderburk  U. Fl.

Clemson Extension Service
Chemicals for Thrips

- Radiant® (5) is effective against thrips, is easy on natural enemies, and is very good for caterpillars.
- Pyrethroid sprays – no longer effective against thrips.
- Monitor® (1B) - has state label for leafminers but has activity against thrips mainly foliage-feeding species.
- Other older, toxic chemistry: Lannate® and dimethoate.
- Rimon (15) – has some caterpillar activity, too.
- Venom (4A) – soil or foliar application.
Caterpillar Pests of Tomato

Beet armyworm

Yellow striped armyworm

Southern armyworm

Tomato fruitworm
Management of Caterpillars

- Caterpillars are the major pests of tomato.
- Reduced reliance on strict pyrethroid programs will reduce secondary pests such as thrips, whiteflies, and aphids.
- Armyworms and corn earworm are main problems.
- Rimon® (15) and Intrepid® (18) – different IRAC groups rotation; Intrepid® is good for big caterpillars.
Other Control Materials

- Proclaim® (6) – expensive but effective.
- Avaunt® (22A) – recommended for beet armyworms.
- Spintor®/Radiant® (5) – will manage thrips, too.
- Belt®, Coragen® and Verimark® (28) – in the same IRAC group; Coragen® and Verimark® have activity against other pests.
- These materials are ‘softer’ in respect to natural enemies.
Spider Mites

- **Acramite® (25)** – bifenazate - mites only; 3 day phi, only one application/season.
- **Oberon® (23)** - spiromefisen – activity against whitefly, too.; 3 applications/season.
- **Kanemite® (20B)** – NO SURFACTANT ON TOMATO.
- **Portal® (21)** – 2 applications/season.
- **Agri-Mek® (6)** – 2 applications in 5 days (no egg activity); resistance issues.