



# COOPERATIVE EXTENSION SERVICE

UNIVERSITY OF KENTUCKY • COLLEGE OF AGRICULTURE

ENT - 15

## INSECTICIDE RECOMMENDATIONS FOR TOBACCO BEDS AND FIELDS- 1999

Prepared by Lee Townsend, Extension Entomologist

These recommendations were prepared as a guide and are not intended to replace the manufacturer's label. Before buying and using an insecticide, **READ THE ENTIRE LABEL CAREFULLY**. Pay special attention to the sections of the label that contain directions for mixing, application, and safety. Be familiar with the proper safety equipment (i.e., goggles, protective suits, respirators, etc.) available and necessary to afford maximum protection to the applicator. Products in ***bold italics*** are ***Restricted Use*** insecticides.

### Float Plant Pests (Outdoor or Greenhouse)

Acephate or Orthene (acephate) 75 SP can be used at the rate of 1 tablespoon per 3 gallons of water per 1,000 sq ft of float tray area. The treatment is labeled to control aphids, cutworms, and flea beetles. It should also provide some control of adult fungus gnats and shore flies. These small black gnats can be found crawling over plants and growth media in the trays. Apply evenly to ensure even coverage. Use of higher than labeled rates may burn the foliage. NOTE: Float bed water should be disposed of in the transplanted field through the transplant water or through foliar spray.

Deadline M-P slug bait (metaldehyde) can be used in greenhouses or lathehouses where tobacco transplants are grown to reduce slug infestations. Apply at the rate of 1 lb of pellets per 1,100 to 3,600 sq ft. This bait is most effective when slugs do not have access to water. It may be less effective in greenhouses.

### Conventional Beds

#### Pre-seeding Treatments

***Di-Syston 15%G*** (disulfoton) can be applied at the rate of 1 oz per 100 sq ft of bed area (3/5 lb per 9' bed, 3/4 lb per 12' bed) for FLEA BEETLE control. Broadcast evenly and incorporate before seeding. ***Di-Syston*** is highly toxic.

#### Postseeding Treatments (Rates for 100' of 9'-wide or 12'-wide beds)

| INSECTICIDE                                                     | RATE                           | COMMENTS                       |
|-----------------------------------------------------------------|--------------------------------|--------------------------------|
| <b>Baits</b><br>Dylox 5%B (trichlorfon)<br>Sevin 5%B (carbaryl) | 10 lbs/bed<br>½ to 1 lb/bed    | Cutworms<br>Cutworms           |
| <b>Sprays</b><br>Acephate or Orthene 75% S                      | 4 tsp/6 gal                    | Aphids, Cutworms, Flea beetles |
| <b>Granules</b><br><b><i>Di-Syston 15G</i></b>                  | 1 oz per 100 sq ft of bed area | Flea beetles                   |

Mix Dylox bait according to label directions. Wear protective clothing and gloves during mixing and application.

**Green June beetle grubs** occasionally can be a problem by uprooting plants in the bed. A soil drench with Dylox may be used if damage is seen. Dylox or Proxol 80% SP at 5/8 or 7/8 lb in 100 gallons of water may be used on 9' or 12' beds, respectively. Apply at the first sign of uprooted seedlings. Only infested areas of the bed may need to be treated.

Deadline M-P (metaldehyde) bait may be used for **slug** control. Damage is most likely on beds adjacent to clover or alfalfa fields. Follow label instructions on rates. Apply in the evening after watering and every 3 to 4 weeks as necessary. Presence of slugs is often indicated by slime trails they leave on the leaf surface. A band of slaked or hydrated lime along margins may reduce slug movement into the bed.

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### Pre-Transplant Soil Applications for Tobacco Fields

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Soil insecticides used for **cutworm** or **wireworm** control should be applied at least one to two weeks before transplant and immediately disked into the top 2" to 4" of soil. A soil insecticide should be used when going into established sods. Liquid formulations are more toxic than granular formulations and pose a greater danger to applicators.

#### Cutworms and Wireworms

| Insecticide                                            | Rate/Acre                     | Comment        |
|--------------------------------------------------------|-------------------------------|----------------|
| <b>Dyfonate II 15G</b><br><b>Dyfonate 4E</b> (fonofos) | 6.7 to 13.4 lbs<br>1 to 2 qts | Wireworms only |
| Lorsban 15%G<br>Lorsban 4E (chlorpyrifos)              | 13.5 to 20 lbs<br>2 to 3 qts  |                |
| <b>Mocap 10% G</b><br><b>Mocap 6 EC</b> (ethoprop)     | 20 lbs<br>1-1/3 qts           | Wireworms only |
| <b>Di-Syston 15% G</b>                                 | 27 lbs                        | Wireworms only |

#### Aphids and Flea Beetles

|                                                |                           |                   |
|------------------------------------------------|---------------------------|-------------------|
| <b>Di-Syston 15% G</b><br><b>Di-Syston 8EC</b> | 13.5 to 26.7 lbs<br>4 pts |                   |
| <b>Furadan 4F</b> (carbofuran)                 | 1 gallon                  | Flea beetles only |

Broadcast and incorporate spray or granules according to label instructions immediately before transplant.

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### Transplant Treatments

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Acephate or Orthene 75 SP can be used at the rate of 1 lb per acre in the transplant water to provide 3 to 4 weeks of control of flea beetles and cutworms. Do not use more than 1 pound per acre as some phytotoxicity may occur.

Admire 2F (imidacloprid) Systemic Insecticide is labeled for application as a drench to float trays or flats prior to transplanting. Admire should be mixed with water and applied at the rate of 1 fl. oz. per 1,000 plants. The plants should be watered from above to wash the insecticide from the foliage into the potting media. Failure to wash Admire from the foliage may result in reduced control. The treatment will suppress aphids and flea beetles.

Admire 2F can be applied in the transplant water at the rate of 1 fl oz per 1,000 plants. Keep the Admire - water suspension agitated or mixed regularly to avoid settling in the transplant tank.

## Foliar Treatments for Tobacco Fields

The treatment guidelines listed on the next page allow proper timing of insecticide applications. Weekly field scouting is necessary to collect the information needed to use them. Check at least 100 plants per field - 10 groups of ten or 5 groups of twenty. Pick your locations randomly. Examine the plants carefully for damage or live insects. Record your counts, calculate the average, and compare them to the table values. Keep these counts so that you can look for trends in insect numbers during the season.

### Treatment Guidelines for Key Tobacco Insect Pests

| Insect       | Treatment Guidelines                                            |
|--------------|-----------------------------------------------------------------|
| Aphids       | Colonies on the upper leaves of 20% (10 of 50 plants) of plants |
| Budworms     | 5 or more budworms per 50 plants                                |
| Flea Beetles | 3+ beetles per plant on new transplants                         |
| Hornworms    | 5 or more hornworms (1" or longer) per 50 plants                |

**Tobacco aphids** may infest tobacco plant beds but populations are usually highest following the flight of winged aphids into fields in mid- to late June. Look on the undersides of leaves, especially in shaded areas of the field. Thorough spray coverage is essential to obtain satisfactory aphid control. A treatment is recommended when aphid colonies can be found on **20%** of the plants in the field.

| Insecticide                                                         | Rate/Acre Small plants | Rate/Acre Large plants | Harvest Interval (days) |
|---------------------------------------------------------------------|------------------------|------------------------|-------------------------|
| Acephate 75 SP<br>Orthene 75 SP                                     | 2/3 lb                 | 1 lb                   | 3                       |
| Golden Leaf Tobacco<br>Spray, Phaser 3E,<br>Thiodan 3E (endosulfan) | 2/3 qt                 | 1-1/3 qt               | 5*                      |
| <b>Lannate 90 WSP</b><br>(methomyl)                                 | ½ lb                   | ½ lb                   | 14                      |

\* Application of products containing endosulfan within 28 days of harvest can lead to increased residue on the crop. Do not spray in the heat of the day.

### Budworm and Hornworm Control

**Budworms** feed in the buds of young tobacco plants causing ragged, uneven holes in developing leaves. Tobacco plants may be topped by these pests resulting in early sucker growth. Examine the buds for feeding damage and the small green to black worms. Treat if there are **5** or more budworms per **50** plants.

The potential for budworm problems is greatest on early-set tobacco. *Bacillus thuringiensis* baits have given excellent control of this insect in flue-cured areas but there are no efficient ways to apply baits to large acerages.

**Hornworms** eat large amounts of tobacco foliage. They first appear in June and are active throughout the remainder of the growing season. Examine the upper third of plants for signs of damage and worms. Treat if there are **5** or more hornworms (1" or longer) per **50** plants. Treatments applied before most worms exceed 1-1/2 inches in length will greatly reduce yield loss. Hornworms with white egg-like cocoons on their back are parasitized by a small wasp. These worms will not contribute to yield loss. By late August or early September as

much as 90% of the hornworm population may be parasitized. Check fields for hornworms about one week before harvest. Apply a short residue insecticide if necessary to prevent taking significant numbers of this pest to the barn. There are no treatments to control hornworms effectively on housed tobacco.

### Budworms and Hornworms

| Insecticide                                              | Rate/Acre Small plants | Rate/Acre Large plants | Harvest Interval (Days) |
|----------------------------------------------------------|------------------------|------------------------|-------------------------|
| Acephate 75 SP<br>Orthene 75 SP                          | 2/3 lb                 | 1 lb                   | 3                       |
| Agree WG (Bt)                                            | 1 to 2 lbs             | 1 to 2 lbs             | 0                       |
| Biobit F (Bt)                                            | 1 to 4 pts             | 1 to 4 pts             | 0                       |
| Dipel 10 G                                               | 5 lbs                  | 10 lbs                 | 0                       |
| Dipel 2X (Bt)                                            | 1/4 to 1/2 lb          | 1/4 to 1/2 lb          | 0                       |
| Javelin (Bt)                                             | 1/8 to 1/2 lb          | 1/8 to 1/2 lb          | Hornworm only<br>0      |
| SOK-Bt L (Bt)                                            | 1/2 to 1-1/2 qts       | 1/2 to 1-1/2 qts       | 0                       |
| Dylox 80 SP<br>Proxol 80 SP                              | 1-1/4 lb               | 1-1/4 lb               | 3                       |
| Golden Leaf Tobacco<br>Spray, Phaser 3E or<br>Thiodan 3E | 2/3 to 1-1/3 qt        | 2/3 to 1-1/3 qt        | 5*                      |
| <b>Lannate WSP</b>                                       | 1/2 lb                 | 1/2 lb                 | 14                      |
| Sevin 80S                                                | 1-1/4 lbs              | 2-1/2 lbs              | 0                       |

**Cutworms** may be present in tobacco fields because of early season weed growth. Often these insects are relatively large by the time tobacco is set in the field. Rescue treatments are generally less effective when damage is confined to the underground portion of the plant. Orthene 75S at 1 lb per acre can be used as a broadcast spray. Proxol 80S, applied in a 12" band over the row can be used as a rescue treatment.

**Japanese beetles** and **green June beetles** can be found on tobacco. Japanese beetles occasionally feed on the plants but green June beetles do not. Sevin 80 S may be used for control at 1-1/4 to 2-1/2 lbs/a if Japanese beetles are causing significant damage.

**Stink bugs** can feed on tobacco and cause the wilting or collapse of individual leaves which can become scalded. Generally the symptoms do not show until a day or two after feeding. Acephate / Orthene and several products containing endosulfan (Phaser and Thiodan) are labeled for stink bug control. Treatment is not justified unless stink bugs are found in the field.

**Flea beetles** cause "shot hole" feeding damage to tobacco leaves. This injury can add to transplant stress and slow plant establishment. Treat if there are 3 or more beetles per plant during the first 2 weeks after transplant. Established plants rarely need protection from this insect.

| Insecticide                                             | Rate/Acre Small plants | Rate/Acre Large plants | Harvest Interval (days) |
|---------------------------------------------------------|------------------------|------------------------|-------------------------|
| Acephate 75 Sp<br>Orthene 75 SP                         | 2/3 lb                 | 1 lb                   | 3                       |
| Golden Leaf<br>Tobacco Spray, Phaser<br>3 E, Thiodan 3E | 2/3 qt                 | 1-1/3 qt               | 5*                      |
| <b>Lannate 90 WSP</b>                                   | ½ lb                   | ½ lb                   | 14                      |
| Sevin 80S                                               | 1-1/4 lbs              | 2-1/2 lbs              | 0                       |

\* Application of products containing endosulfan within 28 days of harvest can lead to increased residue on the on the crop. Do not spray in the heat of the day.

**Grasshoppers** usually remain in forage fields and fence rows. Under dry conditions they may move from these areas into tobacco late in the growing season. Treatment of field borders to prevent mass migration into the field should be considered. When selecting an insecticide for this use consider the possibility of residues and time from application to cutting or grazing.

| Insecticide                                            | Rate/Acre Small plants | Rate/Acre Large plants | Harvest Interval (days) |
|--------------------------------------------------------|------------------------|------------------------|-------------------------|
| Acephate 75 SP<br>Orthene 75 SP                        | 1/3 lb                 | 2/3 lb                 | 3                       |
| Golden Leaf<br>Tobacco Spray, Phaser<br>3E, Thiodan 3E | 2/3 qt                 | 1-1/3 qt               | 5*                      |
| <b>Lannate 90 WSP</b>                                  | ½ lb                   | ½ lb                   | 14                      |

#### Restricted Entry Intervals for Insecticides Labeled for Tobacco (hours)

|                  |    |                            |    |
|------------------|----|----------------------------|----|
| Acephate/Orthene | 24 | Bt Products                | 4  |
| Dylox/Proxol     | 24 | Golden Leaf/Phaser/Thiodan | 24 |
| Lannate          | 48 |                            |    |
| Sevin            | 12 |                            |    |

Where trade names are used no endorsement is intended, nor criticism implied of similar products not names.

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