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Sucker Control in Burley and Dark Tobaccos

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SUCKER CONTROL IN BURLEY AND DARK TOBACCOS
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Removing the tops of tobacco plants removes the dominant influence of the terminal shoot over lateral shoots or "suckers." If left unchecked, suckers can severely reduce yield and quality of tobacco. Manual control of suckers has almost totally given way to less expensive and more efficient chemical control. Three types of chemical sprays for controlling sucker growth on tobacco plants are:
•Systemic--These chemicals are absorbed by plants and move inside the plant to active growth sites,
•Contact--These chemicals are not absorbed by plants and must be used so as to contact the suckers directly.
•Local systemic--This chemical runs down the stalk and is absorbed by the suckers.

Topping times and application methods for the 3 types of chemicals differ and are discussed separately.

Chemical Sucker Control on Burley Tobacco

Systemic Chemicals

Suckers in burley tobacco can be chemically controlled with relative ease and certainty. Burley tobacco is harvested 3 to 4 weeks after topping and, therefore, requires a shorter control period than tobaccos that have a longer duration between topping and harvesting. However, individual burley varieties may respond differently to chemical sucker control and the degree of control may vary.
The systemic chemicals contain maleic hydrazide (MH) as the active ingredient. Maleic hydrazide used at the proper rate does not kill suckers but prevents additional growth. Normal growth of small upper leaves also may be retarded. Therefore, plants should be topped to a leaf that is no smaller than 6 inches long.

When to Use

When a systemic sucker control chemical is to be used, plants should be topped when 50% or fewer plants in the field have at least one flower open (Fig. 1). Any suckers present should be removed when the plants are topped. Sucker control effectiveness is not reduced when untopped plants are sprayed with MH, then topped within two days.

How to Apply

When applying MH, the required amount of chemical (1.5 to 2 pt per 1,000 plants or 1.5 to 2 gal per acre) should be added to water to achieve a total spray volume of 20 to 40 gal per acre. It is not necessary to spray the entire plant when using a systemic chemical. The solution should be sprayed as a fine mist onto the upper portion of the plant (Fig. 2).

Warnings

•Growers should be careful not to exceed the label recommendation of maleic hydrazide. Excessive residues on the cured leaf have in the past discouraged foreign buyers of burley tobacco. Experiment station field tests have shown that higher-than-suggested rates of a systemic spray or spraying two or more times does not improve sucker control or increase tobacco yields. However, if rain occurs within 12 hours after spraying, sucker control may be reduced. Plants should be inspected daily to determine if sucker growth is beginning. If suckers are green and growing, re-spray using the same amount of chemical that was used the first time.
•Tobacco plants that have been growing under drought conditions absorb maleic hydrazide more slowly and, consequently, sucker control maybe less effective than in a normal season.
•Poor sucker control may occur because of poor plant coverage if improper nozzles or less than 20 gal of

solution per acre are used.
•Chance of chemical burn increases if plants are sprayed on bright sunny days when the temperature is above 90"F. This type of injury can be prevented by spraying on a cloudy or hazy day, or in morning if the weather is clear and hot.

Contact Chemicals
The contact-type sucker control chemicals contain "fatty" alcohols (FA) as the active ingredient. The suggested topping time when a contact chemical is to be used is when plants are in the button to early flower stage.

When to Apply
A contact-type chemical can be applied immediately before or after topping or within 2 days after topping. Suckers longer, than one inch should be removed at topping. Contact chemicals work quickly to kill suckers and if no rain occurs within an hour after spraying sucker kill should be completed.

How to Apply
This type of chemical must be applied as a coarse spray so that it runs down the stalk and contacts the young sucker buds. Two and one half gallons of chemical in 50 gal of total spray solution are sufficient for one acre of tobacco.
•When power equipment is used, a 3-nozzle arrangement with TG3 and TG5 full cone tips or equivalent should be used (Fig. 3); pressure should not exceed 20-25 psi. The center nozzle (TG5) should be directed straight down and the side nozzles (TG3) should be 8 to 10 inches to each side and directed in toward the upper part of the plant.
•If a backpack or knapsack type sprayer is used, direct a coarse spray toward the upper end of the stalk; it is not necessary to cut off the spray between plants.

To reduce leaf damage, keep the nozzles of either type of sprayer at least 12 inches above the upper leaves while spraying.

Warnings
(1)Poor sucker control often occurs if plants are not in an upright position, because the chemical will not come in contact with all the sucker buds on a leaning or crooked plant. If possible, leaning plants should be straightened prior to spraying.
(2)During prolonged periods of high temperature and humidity, contact chemicals can cause some loss of lower leaves because of stem rot. This problem may be worse if higher-than-suggested rates or improper concentrations are used.
(3)Do not mix contact sprays with insecticides for application.
(4)Use nozzles that will deliver a coarse spray. If power equipment is used, a 3-nozzle arrangement over each row is necessary to get good coverage.

In special situations the use of both a contact and a systemic chemical may be justified. For example: Irregular Flowering-If flowering times of plants in a field seem likely to vary by a week or more, top the earliest maturing plants when about 50% of the plants are in the button to early flower stage and spray the entire field with FA. About 7 days later, top all plants not previously topped and spray the entire field with MH.

A Local Systemic
The only local systemic sucker control chemical currently available is Prime+®. This material is applied to the top of the plant so that it runs down the stalk and into each leaf axil where it systemically controls the suckers. The method of application is similar to that used for contacts, and Prime+® has, therefore, been used more extensively in dark tobacco regions where contact use is common.

When to Apply

Prime+® should be applied when most tobacco plants are in the elongated button to early flowering stage. That's important because the number and size of suckers should be small. Suckers more than one inch long must be removed at topping.

If flowering is uneven, early flowering plants should be topped and treated with Prime+®. If suckers are present, they should be removed before application.

How to Apply

For best results, this chemical must be hand-applied to each individual plant. This can be accomplished by 3 different methods (dropline, backpack and jug). Prime+® can be applied with power equipment, using a coarse spray nozzle arrangement similar to that used for the contacts. However, sucker control maybe less than that achieved by the hand methods.

Dropline- This involves equipping the sprayer (trailer, tractor mounted, or hi-boy) with droplines for each row (Fig. 4). About 6 to 10 ft of pressure hose, equipped with a cutoff valve and a large volume nozzle, is attached to each sprayer outlet. One person operates each dropline, following the sprayer down the row, treating plants that have reached the elongation bud stage.

Backpack- This method is similar to the dropline with regards to application methods. The backpack consists of a spray tank and a wand attachment with a nozzle body that can be adjusted or fitted with a coarse spray nozzle (Fig. 5). The wand attachment allows the spray to be directed to the top of each plant. Small acreage growers prefer this or the jug method of application.

Jug- This method involves adding the chemical to a gallon jug and pouring on about 1/2 oz of the solution per plant (Fig. 6).

Rate- One gal of Prime+® should be mixed in 49 gal of water, regardless of the application method. An equivalent amount for the jug method is 2.5 oz of Prime+® in one gal of water. If a hand application method is used, no more than 30 gal of spray solution per acre should be used. With power equipment, a volume of 50 gal per acre is necessary.

Warnings

•Sucker escapes may occur when using Prime+®. MH escapes tend to grow slowly from leaf axils low on the plant, and remain concealed. Prime+® escapes, however, grow only from axils that did not receive adequate treatment, and will grow unchecked until removed. Correct application of Prime+® will result in only scattered escapes that are highly visible. However, if the spray volume is inadequate for contact of all buds or if plants are not in an upright position, the number of escapes can be excessive. Removing escapes two weeks after application is recommended.

•Exceeding spray volume recommendation may result in carryover injury to cover crops or other sensitive rotational crops. The spray volume should be enough to contact each leaf axil without the spray material reaching the ground in sufficient quantities to injure a subsequent crop.

•Prime+® should not be mixed with fungicides or insecticides.

•Failure to apply Prime+® at the recommended flower stage can result in upper leaf distortion if applications are made too early. Poor sucker control may result if applications are made at full flower or later when suckers have already begun to grow.

Chemical Sucker Control on Dark Tobacco

The dark tobaccos produced in Western Kentucky are harvested 4 to 5 weeks after topping. Early topping, a long interval between topping and harvesting, and wider plant spacing in the field result in the growth of many large suckers that must be removed either manually or by chemical treatment.

Good sucker control can be achieved with MH in dark tobacco by using 3 pt per 1000 plants of the 1 1/2 lb/gal formulation. Apply the indicated amounts of MH, in 20 to 40 gal of water per acre, as a fine mist to cover the upper 1/3 to 1/2 of the plant.

Although MH does a good job of controlling suckers on dark tobacco, using it immediately after topping may reduce expansion of the upper leaves. Also, many growers object to the yellowing of upper leaves

resulting from MH used at topping time. To minimize these undesirable effects of MH, many growers use a contact type chemical (FA)just before or after topping and delay the MH treatment for about 7 days. Another alternative is to use two applications of FA, 5 to 7 days apart, and use no MH. Fatty alcohols should be mixed for dark tobacco the same as for burley-2 gal of FA in 48 gal of water. However, because of lower plant populations of dark tobacco, only 30 to 40 gallons per acre of the mixture is needed. Spray applications can be made the same as for burley (see contact type spray used for sucker control on burley tobacco). The same precautions noted for burley tobacco should be taken when using FA for sucker control on dark tobacco.

Prime+® can be applied in the same manner described for burley tobacco. Prime+® does not cause premature yellowing that may occur with MH use and will control suckers longer than the fatty alcohols. An adjustment in spray volume should be made for the shorter growth habits of dark tobacco. When using power equipment, the volume of solution should not exceed 30 gal/acre. Follow the same precautions noted for burley tobacco when applying Prime+® to dark tobacco.