

Sometimes we all need reminding. For example, what Burley Stabilization Corporation (BSC) is.

BSC, ever since the 2004 quota buyout and dissolution of the federal tobacco program, is not a government funded pool. BSC is not required to purchase tobacco that does not meet specified grade standards. BSC is not required to purchase tobacco that other buyers may not want. BSC is not geographically constrained to the burley areas of Tennessee, Virginia, and North Carolina.

BSC is not a tobacco products manufacturer. Rather, BSC is a unique and small leaf dealer. We have to sell what we buy from you to customers that come to the US market looking for the best quality burley in the world. These customers don't buy just whatever we may have bought. They buy only tobacco that meets certain requirements they need.

Our common interest with you, our growers, depends on you working with us to produce and deliver high quality tobacco that we will be able to sell. Every crop season is different. Weather patterns vary. But with dedication to doing things right and on-time, not cutting corners, and paying close attention to your crop and your practices, you can deliver the style of tobacco we need. In good seasons and bad. And all those in between.

We thank you for this dedication. We thank you for your business. Please let us know when you have concerns or questions.

Don Fowlkes, Editor



CPA RESIDUE MANAGEMENT IS CRITICAL

By Don Fowlkes



Chemical residue in the cured leaf is a very important aspect of tobacco quality. The goal is to eliminate residues of as many crop protection agents (CPAs) or pesticides as possible. Where elimination is not feasible, the goal is to minimize the residue to the fullest extent.

Why are we concerned about CPA residues? Because they directly impact the marketability and usability of our tobacco. Manufactured tobacco products like cigarettes must meet strict standards for all components. Thus, all the tobaccos we purchase must likewise adhere

to strict standards for CPA residues. Individual grower's crops as well as larger lots of purchased tobacco have to be rejected or disposed of when CPA residues are detected above tolerance levels. This is very expensive to all parties and can jeopardize a grower's contract or our ability to market the tobaccos we purchase. None of us want that to happen.

This is why we sample your tobacco for CPA residue analysis when you deliver to us. It is in everyone's best interest to take all measures to manage CPA residues. What are some key measures you can take to do this?

Two important practices are to make sure you 1) use only CPAs which are currently labeled for use on burley tobacco (which also means never use any CPA on tobacco which is not labeled for tobacco), and 2) always follow the label directions for use of all CPAs you use.

These two guidelines involve what products you use, when you apply them,

Continued on Page 2

MINIMIZING MH RESIDUES

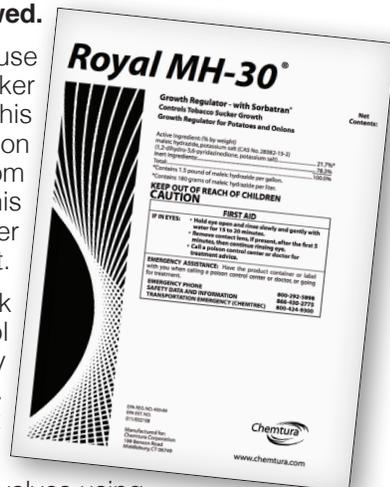
By Don Fowlkes

Many growers face the challenge of getting excellent sucker control while also keeping MH residue levels at an acceptably low level. This challenge can be successfully met as long as certain practices are followed.

One obvious solution to MH residue concerns is to not use MH. This makes the challenge of achieving excellent sucker control more demanding, but some growers make this program work. This requires precision manual application methods such as drop hoses from a high clearance or boom sprayer, backpack sprayer, or jug. See the article in this newsletter by Dr. Andy Bailey on sucker control for further comments on this option and on MH residue management.

Growers not using precision application methods for stalk rundown will need to include some MH in their sucker control program. Lots of helpful research has been conducted by Extension Specialists on ways to minimize MH residues. Steps to minimize MH residues while also getting excellent sucker control include the following.

Use a reduced (less than full) rate of MH. This typically involves using a tank mix of a reduced rate of MH with a reduced rate of a local systemic, such as 1.5 gallons of MH (regular formulation, or 1.0 gallon if using a concentrated formulation)



CPA Residue Management is Critical Continued from Page 1

and how you apply them. For example, when you apply a CPA is very important, especially in terms of applications made close to harvest time. The closer to harvest, the greater the risk of residue problems. Every CPA has a PHI (pre-harvest interval) or minimum number of days to allow between application and harvest. The PHI is stated on the label. You need to know and observe the PHI for every CPA you use. (Note: Some CPAs have a long PHI. For example, Warrior® and generic cyhalothrin products have a 40 day PHI.)

How you apply a CPA is also important in terms of residue management (as well as effectiveness of the treatment). Improper sprayer nozzles or excessive application rate can result in residue problems. Be sure to mix the recommended amount of CPA in the recommended volume of water and apply the recommended amount of spray solution per acre. Use the recommended type of sprayer nozzles (tips). And always use a sprayer which has been recently calibrated. If needed, your county Extension agent can help you with information on how to calibrate your sprayer.

Know your CPAs. Many brand name CPAs have generic counterparts. These products are not always identified with the original name brand product, and some may contain more or less amounts of the active ingredient or even include another active ingredient not in the brand name product. The key is to read and follow the label for what you are using. Also, some CPAs, such as the sucker control material MH

(maleic hydrazide), come in different formulations. To apply the correct amount, you must know which formulation you are using. The regular concentration formulation contains 1.5 pounds of MH per gallon; this includes products such as Royal MH-30®, Super Sucker Stuff®, Fair Plus®, and others. The high concentration formulation contains 2.25 pounds of MH per gallon; and this includes products such as Royal MH-30 Xtra®, Sucker Stuff®, Fair 30®, and others. Please refer to the article on sucker control by Dr. Andy Bailey in this newsletter for additional information on MH formulations.

Miscellaneous notes on CPA residue management:

Late season application of the fungicide Quadris® is labeled but is more likely to leave a residue in the cured leaf than early season to mid-season applications. Don't use insecticides which contain the active ingredients endosulfan or carbaryl.

Use CPAs only for the purpose and in the manner for which they are labeled. For example only, never use a herbicide (such as Prowl®) for sucker control. Residues will be detectable.

In summary, use only labeled-for-tobacco CPAs and always follow all directions on the label.

Your cooperation is appreciated.

TOBACCO TIDBITS

USDA, in its' 2016 acreage report in June, lowered the US burley acreage estimate by 4% from the March report. The 75,900 acres is about 10% less than last year's June 2015 acreage estimate.

In 2015, dark fired tobacco production exceeded burley production in Tennessee.

Burley	Dark-fired	Dark Air-cured
21.6 mil. lbs.	23.6 mil. lbs.	3.3 mil. lbs.

US Government Tax Revenues from Tobacco Products	
Year	\$ Billion
1950	1.79
1960	2.95
1970	4.76
1980	6.56
1990	10.22
2000	14.00*
2010	24.00*

* Rounded approximations
Sources: USDA and US Dept. of the Treasury

Year	Burley Tobacco Acres		% of 1980 Acres (in state)		TN as % of KY
	TN	KY	TN	KY	
1980	52,000	185,000	100 %	100 %	28 %
1985	49,000	170,000	94 %	92 %	29 %
1990	46,000	185,000	88 %	100 %	25 %
1995	43,000	155,000	83 %	84 %	28 %
2000	37,000	120,000	71 %	65 %	31 %
2005	17,000	70,000	33 %	39 %	24 %
2010	15,000	72,000	29 %	39 %	21 %

US Burley Tobacco Production				
Year	Acres	Yield (lbs/A)	Production (mil. lbs.)	Price per pound (\$)
1950	408,300	1,222	499.0	0.49
1960	295,700	1,639	484.7	0.64
1970	216,400	2,590	560.5	0.72
1980	276,600	2,027	560.8	1.66
1990	271,200	2,205	598.0	1.75
2000	185,000	1,957	362.0	1.96
2010	97,600	1,922	187.6	1.55
2015	78,900	1,834	144.7	1.93

Mid & Late Season Insect Updates For Burley Growers

By Hannah Burrack, NC State University

As the summer heats flares, so can insect populations. The majority of our key insect pests of tobacco occur in the mid and late growing season, and planning ahead for scouting and managing is important. Three major insect pests are consistent problems: green peach aphids, tobacco budworms, and hornworms. If you're considering making an insecticide application, be sure to consult your local extension publications or personnel as pesticide registrations may vary between states. Remember, the product label is the law!

Green Peach Aphid

Aphids are a pest in tobacco pre-topping because they prefer to feed on succulent new growth. Because of this feeding preference, aphids are typically localized at the top of the plant. They are also more attracted to plants grown in soil with high nitrogen levels, as this results in succulent, green leaves. After topping, tobacco leaves harden off and mature and are no longer attractive to aphids. In addition, some sucker control materials (the fatty alcohol contacts) applied to tobacco to limit sucker growth are also somewhat toxic to aphids.

The recommended treatment threshold for aphids in tobacco is 10% infested plants. A plant is considered infested if leaves in the upper third of the plant have 50 or more wingless aphids present. As the use of systemic neonicotinoid insecticides (such as Admire Pro® and Platinum®) in tobacco has become the standard, the need for foliar aphid treatments has diminished. However, these treatments may "play out" close to topping time. In these cases, a foliar application may be justified.

If aphids are present after topping, it is almost always on sucker growth. Suckers are a far bigger threat to leaf yield than aphids are, and therefore, sucker control, not aphid control, should be the focus. If plants are maintained sucker-free, aphid populations are unlikely to develop.

Tobacco Budworms



Similar to aphids, tobacco budworms are primarily a pre-topping pest. Budworms, as their name suggests, feed within the bud, on flowers, and on seed capsules. Tobacco budworm feeding can result in holes in foliage (called Type 1 Damage) and can destroy flowers and seed capsules, in seed production. In some cases, tobacco budworm feeding can result in destruction of the bud, prematurely topping the plant (Type 2 Damage). Type 1 Damage is the most common type of tobacco budworm damage, and this type of feeding does not typically result in measurable yield loss. This is because budworm injury occurs prior to topping, while plants are still growing. The plant can compensate for the weight loss to tobacco budworm feeding. Type 2 Damage is of greater economic concern, because it potentially increases labor costs for sucker control. Type 2 Damage, however, is less common than Type 1 Damage.

Scouting for tobacco budworms should begin approximately 3 weeks after transplant and continue until about 2 weeks before topping. Budworms will not usually cause significant loss after buttoning and should not be counted after that time. The threshold for treating budworms in tobacco is currently 10%, but this threshold is extremely conservative. Based on much recent research, tobacco budworms must generally reach much higher populations to cause economic loss. If budworm populations are at or near threshold but plants will be topped within 2 weeks, treatment is not recommended because limited damage will occur before topping, and after topping, budworms are no longer a pest. Timely topping will reduce budworm populations and damage.



Tobacco & Tomato Hornworms

Hornworms are the most potentially damaging tobacco pest. If left unmanaged, these voracious caterpillars can strip plants down to the stalk. Fortunately, they are also relatively easy to manage. Because hornworm larvae consume such large amounts of tobacco leaf, they have high exposure to any pesticides applied.

Tobacco-feeding hornworms include 2 species, the tobacco hornworm and the tomato hornworm. These species are biologically similar but easily distinguished from one another both as larvae and adults. Tobacco hornworms have 7 diagonal stripes on each side and a red posterior horn, while tomato hornworms have 8 check-shaped stripes on each side and a bluish black horn. Tobacco hornworm moths have 6 orange spots on their abdomen, and tomato hornworm moths have 5 spots.

Hornworm scouting should begin pre-topping, as populations can develop early in the growing season. Most commonly, however, hornworms reach damaging numbers in tobacco after topping. Treatment is justified when one or more hornworms larger than 1 inch and without



parasite cocoons are found per 10 plants checked. Since larvae with parasite cocoons eat much less, they should be counted as 1/5 of a caterpillar, meaning five worms with cocoons equal one healthy worm.

Scouting Basics

Tobacco fields should be scouted weekly following transplant through harvest. Growers should observe at least 40 plants randomly distributed throughout fields. In larger fields, we recommend that growers observe 15-20 randomly distributed plants per acre. Record your scouting information (the number of insects observed and the number of plants visited) for GAP records. This information is also useful when determining if insecticide treatments were effective and for planning pest management strategies in future years. Consult your Extension agent for insecticide recommendations for your area.

TACTICS FOR MANAGEMENT OF TARGET SPOT AND FROGEYE LEAF SPOT IN THE FIELD

By Emily Pfeufer, University of KY

Target spot and frogeye have the potential to significantly reduce quality and yield if allowed to progress unchecked in the field. Both of these diseases initiate in the oldest leaves of field-set plants, and gradually progress to higher leaves through the season. Here are some fungal leaf spot management tactics to keep in mind this season:



Set disease-free transplants. Many greenhouses had at least a touch of target spot earlier this year. If plants with heavy pressure from target spot in the greenhouse were set, the risk of target spot in the field is increased. Scout your fields regularly to monitor the disease situation (regardless of the health status of the plants when transplanted).

Reduce weed pressure in and around fields. Weeds can indirectly impact fungal leaf spot diseases in multiple ways. These plants can serve as hosts or potential refuge sites for the fungal pathogens that cause target spot and frogeye. Heavy weed pressure promotes leaf wetness and humidity in the plant canopy, which allow fungal spores that have impacted tobacco to germinate and infect plants. In weedy fields, sprays may not reach tobacco if weeds shield them from thorough coverage.

Manage with fungicides. Azoxystrobin fungicides, such as Quadris®, are the only fungicides labeled for management

of both target spot and frogeye leaf spot. The label states that Quadris® cannot be used in back-to-back applications. This is important to minimize the risk of pathogen resistance to this fungicide. The only option for fungicide rotation at this time is a mancozeb fungicide like Manzate Pro-Stick® (Penncozeb DF® is also registered for use only in VA). Both of these have protectant modes of action and must be applied prior to disease onset for maximum efficacy. Fungicides commonly used for other diseases, such as black shank or blue mold, are not effective against target spot and frogeye. Note also that some tobacco buying companies have expressed concern about mancozeb residues, so use this material only if needed (that is, if target spot or frogeye still need to be controlled and one application of Quadris®

has already been applied) and not late in the season. An application of Quadris® 4-6 weeks after setting has been shown to effectively reduce target spot in most years and most locations. An additional application later in the season may be made if disease pressure is high and/or rainy conditions prevail. These are most effective when applied using drop nozzles to attain good coverage of leaf tissue.

By combining disease-free transplants, weed management, and fungicide applications, growers have the best potential to minimize target spot and frogeye this season.



For additional information about these diseases, please see the 2015-2016 multi-state Burley and Dark Tobacco Production Guide (<http://www2.ca.uky.edu/agcomm/pubs/id/id160/id160.pdf>), the 2016 Tobacco Fungicide Guide (http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/ppfsagt8.pdf), and factsheets from University of Kentucky (<http://www2.ca.uky.edu/agcollege/plantpathology/extension/pubs.html>), North Carolina State University (http://www.ces.ncsu.edu/depts/pp/notes/Tobacco/tobacco_contents.html), and Virginia Tech (<http://www.aren.vaes.vt.edu/southern-piedmont/tobacco/>).

Minimizing MH Residues Continued from Page 1

and 2 quarts of Prime+, Butralin, FluPro, or Drexalin Plus. Sometimes the MH rate can be reduced further, down to 1.3 gallons, for example, without compromising sucker control.

Apply with full cone (solid cone) nozzles which provide high volume output and coarse spray droplets. This type of nozzle provides better stalk rundown and reduced risk of high MH residues compared to flat-fan or other fine spray nozzles. The TG series or equivalent nozzles work well in this situation.

Don't harvest too soon after applying MH. Rain washes MH deposits off the tobacco leaves, so odds are that more rain will have occurred during a 4-5 week period after MH application compared to a 2-3 week period. Not to mention the yield improvement from the longer period after topping. Don't apply MH in the heat of the day or during drought conditions. Why? Because the MH will not be absorbed well by the plant, sucker control will likely be unsatisfactory, and then you may be tempted to make a second application, which will greatly increase the chances of high residues.

Thinking Ahead for Topping and Sucker Control in Burley Tobacco

By Andy Bailey
Tobacco Extension Specialist
University of KY / University of TN

Timely topping and effective sucker control practices are critical to maintaining good yield and quality for burley tobacco. Early removal of the flower bud diverts the plant's energy away from seed production and towards leaf production. Hormonal changes also occur in the plant at topping that increase root growth and lead to desirable physical and chemical properties as the plant matures. With current tobacco crops being larger with staggered transplanting dates and different varieties of varying maturities being used to extend the harvest window, it's easy not to think much about topping and sucker control until it is time to start topping.

Ideal topping time for most burley tobacco varieties is when 10 to 25% of the plants in the field have at least one open flower. Late maturing varieties like KT 206, KT 209, HB3307, and HB4488 may respond better to bud topping prior to 10% bloom, and extremely late varieties like KT 210 and NC 7 will require bud topping prior to 10% bloom in order to maintain plants at a manageable height at harvest. Topped burley plants should have 22 to 24 usable leaves left on the plant (not including small bottom leaves that will most likely be lost prior to housing). This optimum number of leaves gives the plant potential to develop four distinct grades, including a true tip (T) grade. All burley varieties can produce several more leaves than this, but extra leaves beyond 24 does not necessarily mean extra yield. Root development dictates how many leaves

can be supported by the plant, and often topping to more than 24 leaves only results in smaller leaves, as well as increased stripping labor, and increased risk of houseburn and sweat in older barns.

As soon as the terminal bud is removed at topping, the plant immediately puts energy into production of suckers at leaf axils. Many of the benefits of topping at the appropriate bloom stage and leaf number are lost if suckers are not controlled. Poor sucker control can result in yield reductions of 30 to 40%, not to mention the hand labor required to make



the plant harvestable. Some varieties, such as the early maturing KY 14xL8 and KT 212, are known to have more rapid and vigorous sucker growth that may require early topping and more aggressive sucker control strategies.

Currently, effective sucker control programs for burley tobacco are centered around an application of maleic hydrazide (MH). MH is still the only true systemic sucker control chemical available and is the most effective chemical we have for sucker control. Contact fatty alcohol products and local systemic products like butralin and flumetralin work well when they come into direct contact with the leaf axil, but MH only has to contact the leaves in the upper third of the plant in order to move throughout the plant under good soil moisture. MH allows for economical sucker control through broadcast spray applications. Spray applications of contacts and local systemics require the tobacco to be straight, row spacing consistent, and work better when applied through 3-nozzle per row systems that direct the spray down the stalk. Although there has been lots of university research trials conducted to develop sucker control programs that do not include MH, the vast majority of these trials have shown that even the best MH-free programs do not provide sucker control that is equivalent to programs that include MH. MH-free sucker control programs can be very effective if applied as manual stalk rundown applications with backpacks or droplines, but most burley growers with larger acreages would not find the labor required for these manual applications to be economical.

Since MH is used in most burley sucker control programs and requires rates much higher than rates used for other pesticides,

Thinking Ahead... Continued from Page 5

MH residue in cured leaf has been and continues to be a concern for tobacco buyers and manufacturers. Although MH has repeatedly been shown to be safe to humans and the environment, the sheer magnitude of MH residues compared to those of other pesticides draws attention to MH. For this reason, be sure to use the appropriate rates, timings, and methods given on the product label. Do not reapply MH unless significant rainfall has occurred within 6 hours of application. If significant rainfall occurs within 3 hours, repeat the application at the original rate used. If significant rainfall occurs within 6 hours, repeat the application at half of the original rate used.

MH is currently available in regular concentrate and high concentrate formulations. The regular concentrate has 1.5 lbs MH per gallon of product. The high concentrate has 2.25 lbs MH per gallon of product. Our standard recommendation is to apply 1.5 gallons of a regular concentrate MH product, or 1 gallon of a high concentrate MH product per acre, tank mixed with 0.5 gallons

of butralin or a flumetralin product. The simplest and most economical way to manage suckers would be to make this application either just before or just after topping. For uneven fields that may require more than one topping, contact applications should be used at the first topping so that smaller untopped plants are not damaged. Standard rates of contact fatty alcohols for burley are 1.5 to 2 gallons per acre, and these applications will be more effective when using the 3-nozzle/row setup as they require contact with each leaf axil.

All sucker control applications should be made with coarse nozzles such as TG-5's or similar, and a spray volume of 50 gallons per acre should be used. Lower spray volumes

may not allow the solution to reach the bottom of the plants. Slightly higher spray volumes may improve coverage on crooked tobacco, but spray volumes should not exceed 60 gallons per acre. When contacts or local systemics are applied without MH, spraying fewer rows in a pass is generally more effective in keeping the spray centered over each row.

Remember that with sucker control, as with anything in tobacco production, it is much easier to stay ahead of a problem rather than getting behind and trying to catch up. Start early this year thinking about these recommended principles for topping and sucker control programs for burley tobacco.



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