

Research finds answers on growing more burley

Key Points

- Burley production may be shrinking in nontraditional areas.
- NCSU researchers are investigating ways to increase burley yield.
- Better understanding of burley fertilization may be a key.

By RICHARD DAVIS

TOBACCO growers in the eastern part of North Carolina have backed off the aggressive expansion they were making into burley two to three years ago. Loren Fisher, North Carolina State University Extension tobacco specialist, says burley acreage in the region is stable "at best" compared to last year and could possibly be down 10% to 15% (see "Producers back off burley" on Page 12 of the July issue of *Carolina-Virginia Farmer*).

Disappointing yields from burley tobacco compared to flue-cured is given as the reason for the hesitation, but North Carolina State University researchers are working hard to come up with ways to remedy the situation. If they can get better yield from burley, growers will continue to have a new profitable crop to grow. They think they can.

"Burley production in the East is a very nontraditional thing so there is very little research on it," says Robbie Parker, NCSU Extension tobacco specialist. "We're trying to look at anything we can to help growers increase yield."

The search for answers

New, better-yielding varieties may be one answer. Another, says Parker, could be greater knowledge about fertility management practices.

In one set of promising tests focused on the latter, NCSU researchers are



PROFITABLE RESEARCH: Burley yield is a key area of North Carolina State University's tobacco research focus, says Robbie Parker, NCSU Extension tobacco specialist. The research has already paid dividends to farmers, he says.

trying different rates of potassium compared to nitrogen.

This year, variables in research tests include using 120 pounds of K, 150 pounds of K and 180 pounds of K, notes Parker.

"Right now, the 180 pounds looks better than the other two, but it still isn't overcoming K deficiencies being observed," Parker adds. That leads him to believe the problem is more a plant uptake issue rather than a soil issue.

"I think we have plenty of K in the soil, but the plant isn't able to take enough of it up to maintain levels within the plant during times of rapid growth," he says.

The explanation may simply be that tobacco grows faster in the East than it does in the West, Parker notes. "There is a particular growth phase in the plant's filling out where the potassium deficiency occurs," he says.

Normally, there is no shortage of K in North Carolina soils where burley is grown, but K is a mobile nutrient that can leech.

"Generally, we apply enough to the crop to prevent a deficiency. However, the way this crop develops in the East, it goes from a small plant and fills out so quickly I just don't think it is able to pick up enough K to meet the requirements under certain conditions," Parker says.

The researchers are also looking at some liquid-release materials, Parker notes. "And anything that keeps the material in the ammonium state longer also adds to the K deficiency, since two cations or positive molecules in the soil compete for uptake," he says.

At present, there is little work being done on looking at the uptake. But Parker says he hopes to take on some more of this research in the future.

"We would love to be able to take some of this research and apply these results to breeding a burley line that

has a better root system that is more efficient at uptake, not only of K but also of N," he says. "Right now, we are generally recommending 250 pounds of N per acre for burley, and you can actually produce more flue-cured on 60 pounds of N. That is something we will probably look at in the future: trying to increase the uptake and efficiency of the burley root system and plant."

NCSU research has indeed helped growers who follow recommendations to increase their potential yield. Tests on planting and harvesting dates have yielded positive results. "From some of the tests last year, we have been able to determine that earlier transplanting of burley has led to significant yield increases in most locations," Parker says. "We are actually recommending now that growers plant their burley before they plant their flue-cured."

Foreign buyers don't want MH

By RICHARD DAVIS

MANY countries that buy American tobacco, particularly countries in Europe, have made it known they do not want maleic hydrazide, or MH, residues in tobacco. Clemson University researchers are looking at ways to satisfy these global marketplace customers by cutting back residues as much as possible.

"We are going to need MH as part of the overall sucker control program, but we want to get by with the least amount we can," says Dewitt Gooden, Clemson tobacco specialist. "For example, we are looking at different nozzle sizes to see if that changes the application pattern of the MH and whether that will have any impact on the residues. It may funnel it further down the plant rather than broadcast it over all the leaves."

Gooden says cutting residues will probably require a package approach. "We are going to need the contacts and then the MH is necessary," he says. "We're finding that using Flupro or Prime+, which are flumetralin materials, will give us some improved sucker control, and we won't have to use as much MH."

But there is also some concern about flumetralin in the tobacco, especially from the Europeans, he adds. This year, researchers are looking at a new material called Butralin, distributed in the U.S. by Chemtura, that doesn't leave as much residue in the plant.

"This Butralin doesn't hang around in the plant quite as long," Gooden says, "but at the same time, we want to know if it is going to give us as good sucker control as the flumetralin. I think we're making some progress in getting a handle on this question."

Additional areas of Clemson tobacco research include a lot of work in varieties in official variety trial and regional variety plots, Gooden says.



DEWITT GOODEN

When is it ripe?

BURLEY doesn't change color like flue-cured does to let you know it is ripe, notes Robbie Parker, NCSU Extension tobacco specialist. Essentially, growers have to do a day count, so they know when to harvest. They know, for example, that at a certain day count, say at 28 days after topping, they have to harvest because that is when burley tobacco will be ripe even though the grower doesn't see it change color.

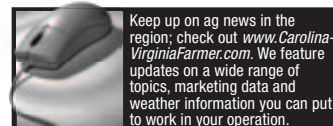
In research tests this year, Parker and his associates at NCSU have been looking at harvesting at various dates, from 21 days after topping and then in 10-day increments at 21 days, 31 days and their latest date of 41 days, thereafter.

"We have found that as you go past the 28- to 30-day mark, yield starts to decrease, and quality also starts to decrease," Parker says. "Also, the penalty for being too early is not necessarily a yield loss, but you may have a little green color so you don't get the good grade. If it were me, I'd lean a little bit on the early side rather than the late side."

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Contact us:

Editor: Richard Davis
700 Privette St., Wilson, NC 27893
E-mail: rdavis@farmprogress.com
Phone: 252-237-4422 Fax: 252-237-8999

Contributing Editors:

Pam Golden
Lon Tonneson
Alan Newport
John A. Otte, Economics
Arlan Suderman, Marketing & Management
Executive Editor: Dan Crummett

Corporate Editorial Director: Willie Vogt,
651-454-6994, wvogt@farmprogress.com

Sales: Bill Pittard 901-758-2743

Subscription Questions: 800-441-1410

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POSTMASTER: Please send address corrections to *Carolina-Virginia Farmer*, 191 S. Gary Ave., Carol Stream, IL 60188.