

# Field Check

December  
1999

A project of the Cotton Pest Management Alliance

University of California-Cooperative Extension and California Cotton Growers Association participating

## Calendar

### Dec. 14

Northern California Cotton Production Seminar, 8:30 a.m., UCCE office, Colusa. Sponsored by Western Farm Press, UCCE, and California Cotton Growers and Ginners Association. Contact Harry Cline, (559) 248-8755 or Doug Munier, (530) 865-1107.

### Jan. 4-8

National Cotton Council's Beltwide Cotton Conferences, Marriott Rivercenter, San Antonio, Texas.

## Controlling root-knot nematodes

University researchers are exploring ways to control southern root-knot nematodes in San Joaquin Valley cotton—and with good reason. The harmful soil pests rob SJV cotton growers of nearly 34,000 bales every year, says Dr. Pete Goodell, IPM specialist with the University of California.

Moreover, while root-knot nematodes can be controlled chemically, “the material choices are limited—and their days possibly numbered,” Goodell says.

Growers can fumigate soil with Telone II (1,3 dichloropropene—or 1,3 D) or suppress nematode population with Temik 15G (aldicarb) placed in the seed line at planting. But these chemical controls are in jeopardy, says Goodell, because: 1) Fumigation is cost-prohibitive for cotton; 2) 1,3 D is included on the Prop 65 list; and 3) aldicarb is considered a high-risk material because of mammalian toxicity concerns.

Goodell and UC Riverside's Dr. Phillip Roberts have just completed a six-year study to look at other ways to control southern root-knot nematodes, which are most damaging in sandy to sandy loam soils where cotton has been continuously cultivated for several years.

**Cultural management.** With funds from Cotton Inc.'s California State Support Committee, Goodell and Roberts explored cultural management of the pest. The project focused on evaluating root-knot-nematode-resistant cotton to protect yield while reducing nematode populations.

Although Telone II wasn't available as a chemical check during the first three years, trials at the Shafter research station proved the value of the NemX cotton variety as a management tool. “NemX protected yield while reducing the population of root-knot nematode,” Goodell says.

In the second three years, Telone II was available. Compared to fumigation, NemX performed quite well in yield compared to a susceptible variety with fumigation. NemX also appeared to protect yield

in subsequent years without fumigation. These trials noted that continuous cultivation of resistant varieties is not only unnecessary but tends to select a population capable of reproducing on the resistant variety. “A single year of NemX is adequate to protect a subsequent crop of Maxxa or other susceptible cotton,” Goodell says.

**Role of non-hosts.** Crop rotation remains an important cultural management tool for root-knot nematode in cotton. Results of a Cotton Inc. State Support trial support the use of alfalfa and black-eyed beans as non-hosts to reduce the pest's population.

Cotton plays a key role by acting as a non-host for all common nematode species except the cotton-attack-

ing southern root-knot nematode. “NemX can reduce these populations and could play an important role in better preparing the ground to protect a susceptible vegetable crop,” Goodell adds. □

—E-mail Goodell at [ipmpbg@uckac.edu](mailto:ipmpbg@uckac.edu)



## More data needed to compare cottons

The 1999 growing season won't necessarily provide definitive data on expected differences in yield potential between Acala and California Upland varieties, says statewide cotton specialist Bob Hutmacher.

Mild summer weather minimized high temperature injury and boll losses in the more sensitive Acala varieties. “A year with hotter bloom-time temperatures may show relative importance of varietal differences in heat sensitivity,” Hutmacher says.

In addition, foliar damage and yield losses from *Verticillium* wilt damage were quite limited this year, “even in the California Upland varieties where we have little prior information on *Verticillium* tolerance,” he says.

It's still largely unknown whether 1999's limited damage implies tolerance or simply reflects lower levels of the *Verticillium* organism due to long-term rotations to *Verticillium*-tolerant cotton and other crops. It will become more evident as more *Verticillium*-sensitive varieties are grown for a few years in a row.

“It may take a couple of years of cotton production, and perhaps time for soil inoculum levels to build, before *Verticillium* tolerance characteristics of these new varieties can be firmly established,” says Hutmacher. □

## General guidelines for managing root-knot nematodes in cotton

- **NemX cotton protects yield while suppressing root-knot nematode, but continuous use is not a good practice.**
- **NemX cotton is best utilized in the final year of a 3- or 4-year cotton rotation.**
- **Using NemX in the final year of a cotton rotation suppresses root-knot nematode populations and could benefit the subsequent crop.**
- **In situations where root-knot population densities are low, Maxxa is very capable of outyielding NemX.**
- **Common rotations, such as black-eyed beans and alfalfa, are very effective in bringing southern root-knot nematode populations down and greatly benefit cotton production.**

## Time to start winter field work

Getting caught unprepared by those first heavy rains can create problems and keep you out of your fields for weeks.

“Every year, we see problems with compaction, weed control and seedbed preparation that can be linked to working the ground too wet,” says Bob Hutmacher, UCCE statewide cotton specialist.

Hutmacher suggests deciding early, where possible, on the need for ripping or deep tillage.

“In coarser-textured soils, it’s usually advisable to do deep tillage in fairly dry soils to reduce risk of compaction,” he says. “In finer soils, deep tillage at lower water contents does a better job of loosening compacted soils,

and helps avoid creating a slot when ripping.”

Hutmacher also suggests these late-fall tips:

**(1) Consider collecting soil samples** now or in early winter to evaluate needs for soil potassium and phosphorus fertilizers.

**(2) Evaluate the desirability of composts/amendments** at this time if it’s still possible to make applications.

**(3) Wait on soil nitrogen analyses/applications** until late-winter or early spring to avoid problems with leaching losses.

Depending on the advance of winter rains, there may be little time remaining for some of these operations this year.

“Selecting the right winter weed program also is influenced strongly by when the fields are



bedded-up,” Hutmacher says. “There are advantages in putting up beds this fall or in early winter.” These include improved physical soil structure and preservation of good soil moisture, which help avoid water losses that occur with extensive spring cultivation.

“Keep in mind that unchecked weed growth can use much of that moisture and cause many other problems,” he says. □

— Contact Hutmacher at [RBHutmacher@ucdavis.edu](mailto:RBHutmacher@ucdavis.edu)

**Plowdown deadlines are:**  
Dec. 20—**for fields south of Shields Ave.**  
Dec. 31—**for fields north of Shields Ave.**  
**County ag commissioners will administer stiff penalties to those not complying with the deadline.**

## Tips on winter fallow-bed weed control

For winter fallow-bed weed control, UCCE farm advisor Ron Vargas offers these recommendations:

- In deciding on your approach, consider the dominant weed species problems. Significant acreage with specific problem weeds, such as nightshade, annual morningglory, nutsedge, field bindweed and perennial grasses, may affect the most cost-effective choices in improving weed control during the upcoming season.

- With fall bed preparation, a preplant application of a dinitroaniline herbicide (Trifluralin or pendimethalin) remains highly desirable. When properly incorporated, this can provide good control of most annual grasses and many broadleaves.

- Presence of dinitroaniline-tolerant weeds (mustard family, others) necessitates use of other materials applied prior to irrigation or rain. These include prometryn (Caparol), cyanazine (Bladex), and oxyfluorfen (Goal). These applications are then activated by rain or irrigation.

- You can also consider glyphosate (Roundup) or paraquat (Gramoxone) for postemergence control of volunteer cereals and winter annuals.

- Remember, weeds left to grow on fallow beds not only deplete soil moisture but can interfere with final seedbed preparation and planting. Green, undecomposed vegetation worked into the beds at planting provides an ideal host for cutworms and wireworms, which can devastate cotton seedlings and result in lower-than-desired plant populations.

“In the coming year, we will see availability of an increasing choice of varieties of herbicide-resistant cotton, such as Roundup-Ready and Buctril-resistant,” Vargas says. “Provided that varieties are developed with favorable agronomic characteristics, fiber quality and yields, these varieties will have a big impact on future weed control choices in California cotton.”

Vargas adds that in future years, the emergence of some alternative stalk management equipment, such as the Pegasus stalk burial system, may also expand grower options in managing post-harvest tillage and weed management operations. □

— You can reach Vargas at (559) 675-7879 or [rnvargas@ucdavis.edu](mailto:rnvargas@ucdavis.edu)

## A reduced-risk success: SJV’s Pink Bollworm Program

One of the biggest success stories in reduced-risk management is the San Joaquin Valley’s Pink Bollworm Program.

With its strategy of trapping, sterile moth releases and compulsory plowdown, the Pink Bollworm Program has kept the destructive pest out of the SJV for decades—and all without pesticides.

“The key to the program’s success has been growers’ support—both monetarily and in their compliance,” says Jim Rudig, CDFA’s area manager for the Pink Bollworm Program.

“It is unique that an area of this large size would have the foresight to put together this program,” Rudig says. “Because of it, growers pay a lot less than what Arizona and Southern California cotton producers are paying to control this pest.” □

### FieldCheck

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Editor: Catherine Merlo  
For information, contact CCGA: 1941 N. Gateway Blvd. #101  
Fresno CA 93727  
Phone: (559) 252-0684  
Fax: (559) 252-0551  
E-mail: [cagingrow@aol.com](mailto:cagingrow@aol.com)