

## Cutting-Edge Research At Ag Progress

ROCKSPRINGS (Centre Co.) — Dwarf trees, living mulch, and "bug maps" are among the cutting-edge research projects that will be highlighted in guided tours of the Russell E. Larson Agricultural Research Center during Penn State's Ag Progress Days, Aug. 17-19.

The free 30-minute bus tours, which leave every 20 minutes each day, will take visitors through Penn State's horticulture, plant pathology, agronomy, and entomology research farms, and the USDA Pasture Systems and Watershed Management Laboratory research farm.

On the horticulture farm, visitors will see an experimental orchard where apple trees are growing on wires, trellises, and poles. The Penn State Low Hedgerow

Trellis System is part of an effort to grow smaller dwarf and semi-dwarf trees, which can reduce the need for large equipment, make labor more efficient and reduce the amount of pesticides needed to protect the crop.

Other horticulture plots include research on the use of clear plastic mulch in the production of sweet corn, on how plastic mulch and trickle irrigation affect the yield and quality of melons, peppers and tomatoes; and on ways to encourage beneficial fungi that can help plants utilize soil phosphorous while helping to protect their roots from pathogens.

On the plant pathology farm, the tour will feature studies aimed at helping growers eliminate, manage, or reduce crop damage from diseases. Visitors will see an

orchard containing 68 varieties of ornamental crabapple trees, which are part of a long-term study of apple diseases.

Plant pathologists also are evaluating the use of plant disease resistance, mulching, reduced tillage, fungicides, and environmental information to develop better disease control strategies. Use of weather data allows producers to use fungicides only when conditions favor disease development, potentially reducing pesticide use.

The agronomy farm portion of the tour will feature research on the use of crownvetch and other legumes as a "living mulch" in corn and soybean crops. Scientists have found that these legumes can provide ground cover and reduce soil erosion and provide nitrogen to the main crop, potentially re-

ducing the need to apply fertilizer.

Other agronomy research focuses on breeding and management trials for a variety of crops, including corn, soybeans, alfalfa, wheat, barley, and forage grasses. Visitors also will see a study on how various tillage systems affect runoff, and research on how different crop rotations influence corn yield.

At the USDA Pasture Lab, the tour will include research on clover varieties that are resistant to clover root curculio, an insect pest of clover and alfalfa, and studies to improve the establishment and management of switchgrass, a warm-season grass that can be used for livestock grazing and wildlife habitat.

Entomology studies to be discussed on the tour include re-

search on the use of global positioning satellites and related technology to monitor pest and beneficial insect populations. By mapping insect "hot spots," scientists hope to develop better control strategies, reduce the amount of insecticides needed to manage crop damage, and delay the development of insect resistance to pesticides.

Visitors also will see plots with traps baited with insect sex pheromones. Entomologists use these traps — and others like them at more than 100 sites in four states — to monitor and forecast corn pest populations. Data from the traps are used to generate maps that are available on the World Wide Web to help growers, crop consultants, and others determine the need for control measures.

## Drought Will Rob Ohio Corn Yields, Farm Income

COLUMBUS, Ohio — Many Ohio corn fields could have major yield losses because recent scattered showers weren't enough to salvage the crop from season-long drought, said Ohio State University agronomist Peter Thomison.

The projected yield loss would be "significant" in many parts of Ohio, particularly the parched south central region, Thomison said. Losses could exceed the 1988 drought, the worst in recent memory, he said.

Although late July brought rain in 1988, corn yielded a disappointing 85 bushels per acre, and soybeans 27 bushels per acre. In contrast, Ohio's 1994-98 average yields for corn were 129.2 bushels per acre, and soybeans were 40.9 bushels per acre.

The prospect of low yields combined with low crop prices could be a "double whammy" for farmers in drought-stricken parts of Ohio, said Ohio State agricultural economist Allan Lines.

"I think it will probably end up bringing Ohio farm income down, particularly in the grain sector," Lines said "But in the livestock sector this could result in a little better net income because of lower feed prices."

Corn in Ohio's drought-stressed areas needs as much as one-third of an inch of moisture per day when the crop is entering tas-

seling, the peak demand period for water, Thomison said.

"The recent showers helped some, but the benefits were short-lived," Thomison said. "With the high temperatures we basically used up that moisture in a day or two."

Weed pressures are another drought-related variable that can cut into yields because some herbicides need rain to be effective, Thomison said. Also, drought-weakened stalks can set the stage for plant lodging problems, a condition that causes yield losses at harvest.

To make things worse, many corn fields have uneven stands due to variable soil moisture levels, Thomison said. Poor pollination — leading to ultimate yield loss — occurs when plants are not at the same growth stage.

There's still enough time for rain to help Ohio's soybeans because the plants' peak demand for water is a 70-day flowering and pod-fill period, said Ohio State agronomist Jim Beuerlein. "But at some point, July has got to have lots of moisture to make the pod and fill it out," he said.

From April 1 through July 11, Ohio's northwest and north central regions were within 1 inch of average precipitation. The state's driest areas were central, south central and southeast, which are

about 4.5-6.0 inches below average moisture. The rest of Ohio ranged about 1.0-3.5 inches below average precipitation. Overall, Ohio is averaging a 2.83-inch moisture deficit.

The drought comes after a year of slumping corn prices, which could set back Ohio farmers' income for a second year in row. Thomison said most of the Corn Belt west of Ohio is expecting an outstanding crop year, which could increase grain surpluses and further depress already-eroded prices. He said Ohio only produces 5 percent of the nation's corn, so its yield losses will have a negligible effect on national prices.

Farmers can get Ohio State specialists' recommendations for crop management during the drought by subscribing to "Ag Answers," a joint online service operated in conjunction with Purdue University. For information, send an e-mail message to Amy Raley at [ahr@aes.purdue.edu](mailto:ahr@aes.purdue.edu) or consult the Ag Answers home page at <http://www.aes.purdue.edu/AgAnswers/AgAnswers.html>.

Ohio State specialists also give weekly crop condition updates in the online Crop Observation and Recommendation Network (CORN) newsletter. To subscribe, send an e-mail to [corn-out@postoffice.ag.ohiostate.edu](mailto:corn-out@postoffice.ag.ohiostate.edu).

If you have problems subscribing, contact your local Ohio State Extension office or send an e-mail message to [labarge.l@osu.edu](mailto:labarge.l@osu.edu).



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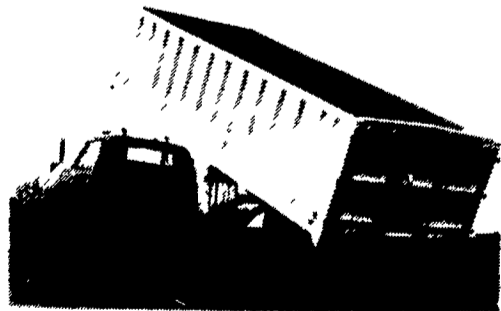
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