

People & Places

OSU researcher targets weeds

Carol Mallory-Smith studies herbicides, but finds herself in middle of GMO arguments, too

By MATEUSZ PERKOWSKI
Capital Press

CORVALLIS, Ore. — In the world of weed control, Carol Mallory-Smith believes what's old is becoming new again.

During her lifetime, the Oregon State University weed science professor has seen agriculture's approach to battling weeds come full circle.

Farmers such as Mallory-Smith's father didn't have access to the multitude of herbicides available today, which meant they had to till weeds or suppress them with cover crops.

The popularity of those methods receded with the rise of chemical solutions, but with increased weed resistance to herbicides, Mallory-Smith expects farmers will again be employing them.

Herbicides will remain an important part of modern farming, but growers will likely use them more strategically in conjunction with non-chemical controls to ensure they stay effective, she said.

"It will be looking at the old techniques with a brand new eye," Mallory-Smith said.

The advent of herbicides has been revolutionary, allowing growers to kill weeds more quickly and thus cultivate a greater number of acres, making crop production more efficient, she said.

Yields and crop quality improved, particularly with the availability of selective herbicides that were able to target broadleaf or grass weeds while minimizing the harm to desirable plants.

"It changed agriculture dramatically," Mallory-Smith said.

Unfortunately, weeds have demonstrated the ability to fight back.

When weed populations are repeatedly sprayed with a chemical, some hardy individuals will withstand the substance and then pass that trait to their progeny. Over



Mateusz Perkowski/Capital Press

Carol Mallory-Smith, a weed science professor at Oregon State University, studies herbicides that can be used on specialty crops in the Northwest and in recent years has also been drawn into some of the controversies over genetic engineering.

time, the genetic tolerance becomes more widespread and reduces the herbicide's power.

That process can occur faster than anticipated, as Mallory-Smith found out while studying for her doctorate, when she identified one of the first weeds resistant to the sulfonylurea class of herbicides.

The prickly lettuce was discovered in a field where the University of Idaho had conducted research for years. As it turned out, a high mutation rate allowed the weed to overcome the chemical's enzyme-inhibiting properties.

"It was unexpected. The chemistry was really new," she said.

Herbicide resistance has become an even more prominent issue in agriculture due to its association with genetic engineering.

Major commodity crops, including corn, soybeans and cotton, have often been genetically modified to withstand herbicides such as glyphosate.

The technology makes killing weeds easier without hurting crops, but the increased reliance on herbicides has also caused more weeds to develop resistance.

Mallory-Smith considers herself an "agnostic" when it comes to genetic engineering, but thinks herbicide-resistant crops could have been managed more carefully.

The agricultural industry embraced the technology, believing it would "solve all our

problems," without relying enough on tactics that would slow the adaptation of weeds, she said. "Now we're sort of back where we started."

The phenomenon of genetically engineered crops spurring herbicide resistance in weeds is primarily occurring in the Midwest, where commodity crops are grown.

However, that fact has hardly insulated Mallory-Smith from the controversies surrounding biotechnology.

Her involvement in the 2013 discovery of biotech wheat growing unauthorized in an Eastern Oregon field was a notable episode that attracted global attention.

When a farmer realized that some of his volunteer wheat wasn't dying after being sprayed with glyphosate, he brought samples to OSU for analysis.

Mallory-Smith believed there was "no way" the herbicide-resistant wheat was a genetically engineered by Monsanto, since research and development of that cultivar had been halted a decade earlier.

"It made no sense that it would be," she said.

DNA testing of the wheat revealed that it was, in fact, the Monsanto variety, which had never been deregulated by USDA.

Its source was never discovered, but the finding did temporarily disrupt Asian export markets and resulted in a class action lawsuit by farmers that Monsanto eventually

settled for \$2.7 million.

Mallory-Smith was also drawn into a long-running dispute over glyphosate-resistant sugar beets, which were the subject of several lawsuits by biotech critics before the USDA ultimately deregulated them in 2012.

The plaintiffs bolstered their request for an injunction against the crop with a written declaration from Mallory-Smith stating that viable roots of the transgenic variety had been found in compost mix. The incident was cited as an example of the difficulty containing the crop.

Monsanto also relied on Mallory-Smith in its arguments against an injunction with a declaration in which she supported the company's safeguards for growing the crop while USDA studied its environmental impacts.

It's painful to watch such conflicts erupt within agriculture, Mallory-Smith said. Her philosophy is to approach such disputes as forthrightly as possible.

"Sometimes it's going to be fine, sometimes people are going to be upset with you," she said.

Currently, Mallory-Smith is studying a subject that's touchy among farmers and seed companies in Oregon's Willamette Valley: canola production.

When state lawmakers imposed a moratorium on most canola production in the region, they also directed OSU to conduct a three-year study on weed, disease and pest



Western Innovator

Carol Mallory-Smith

Occupation: Weed science professor at Oregon State University

Education: Ph.D. in plant science from the University of Idaho in 1990, bachelor of science in plant protection from the University of Idaho in 1986

Age: 67

Hometown: Albany, Ore.

Family: Husband, Robert, four grown children and 12 grandchildren

risks posed by the crop.

Specialty seed companies fear such problems will increase if it becomes prevalent, but the possibility of genetically engineered canola cross-pollinating with related vegetable species has also cast a shadow over the crop.

For now, Mallory-Smith remains tight-lipped about the results of her study, but the controversy is likely to flare up again when her report is released in late 2017.

But not all of her work takes place in the spotlight.

A key part of Mallory-Smith's job is evaluating herbicides for safety and efficacy in specialty crops that are grown in the Northwest.

Chemical companies conduct such analysis for major commodity crops, but it's not economically justifiable for them to examine crops grown on small acreage.

Mallory-Smith and other scientists conduct supplementary studies so minor crops can be included on the federal label for the herbicides.

Though she's surprised by some of the controversies that have erupted during her career, Mallory-Smith said weed science has generally lived up to her expectations.

"It's been the perfect job. Most days," she said.

Ag Fest petting zoo expands to fill livestock pavilion

By JAN JACKSON
For the Capital Press

TURNER, Ore. — An estimated 20,000 people will visit Nosey's Neighborhood Petting Zoo during this year's Oregon Ag Fest.

At the petting zoo, visitors will see and learn more about the species and breeds of farm animals than ever before.

The petting zoo, popular with children and adults, has expanded this year thanks to Cascade High School FFA seniors Austin and Collin Brill, Cascade FFA adviser Becky Bates and Ag Fest board member and petting zoo chairman Craig Anderson.

The annual event takes place April 23-24 at the Oregon State Fairgrounds in Salem.

"I've been teaching at Cascade High School for 10 years and our FFA has taken the lead on the petting zoo every year since I've been here," Bates said. "Austin and Collin Brill led their fellow FFA chapter



Jan Jackson/For the Capital Press

Going over every detail of Ag Fest's biggest petting zoo to date are, from left, Austin Brill, Cascade High School FFA Adviser Becky Bates, Collin Brill and Ag Fest Petting Zoo Chair Craig Anderson.

members and a host of other members from neighboring schools in putting it together and we've exceeded our expectations. It is definitely going to be the best petting zoo yet."

The twin brothers have worked their way up to being principals in the planning process. They also breed and raise market and show pigs, which they will bring to the event.

"We focused on expanding the variety of animals this year and we are pleased with our success," Collin said.

Growers will bring bottle lambs, kid goats, rabbits, cow-calf pairs, "and we have meat, milk and fiber animals to show and explain their differences," he said.

Visitors will also see Hereford, milking short horns, Sim-

Oregon Ag Fest

When: 8:30 a.m.-5 p.m.
Saturday, April 23, and 10:30 a.m.-5 p.m. Sunday, April 24

Where: Oregon State Fairgrounds

Online: www.oragfest.com

Admission: Children 12 and under are free; \$9 for ages 13 and up

Parking: Free

mental, Jersey, brown Swiss and Holstein cattle as well Duroc, Yorkshire and Hampshire/Yorkshire-cross pigs.

The sheep breeds will include Montadale, Hampshire, Suffolk, Southdown and black-face crosses rather than the less common ones raised just for fiber.

"In addition to all the people it takes to set up and take down pens, lay down and refresh straw and keep it all policed throughout the two days, we will have FFA students in official dress at every pen ready to help with

the petting process, tell people what they are seeing and answer questions," he said.

The advanced agriculture students have written all the information that goes on the pen signs, and other classes have made displays that will be placed around the pavilion, he said.

In addition to the petting zoo, about 25 hands-on activities will be available, plus pony rides, toy tractor races, farm equipment displays, a craft and garden display and family entertainment.

A ranch breakfast will be served 8:30-10:30 a.m. Saturday only. The cost is \$6 each; children under 3 years old are free. Proceeds benefit 4-H youth programs.

Asked if they had any advice for attending Ag Fest, Austin Brill said, "Wear comfortable shoes, wash your hands at the washing stations before and after you pet the animals and come early because once you get here you will want to stay all day."

Calendar

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20 Northwest Locations

To submit an event go to the Community Events calendar on the home page of our website at www.capitalpress.com and click on "Submit an Event." Calendar items can also be mailed to Capital Press, 1400 Broadway St. NE, Salem, OR 97301.

Saturday, April 16

Oregon Women for Agriculture Auction & Dinner, 5-9 p.m. The organization's 29th annual fundraiser, themed "Oregon Agriculture A to Z."

will take place at the Linn County Fair & Expo Center, 3700 Knox Butte Road E in Albany, Ore. Cost: \$40 per person. <http://owaonline.org/owa-auction-2016/>

Goat healthcare and nutrition and packgoat seminar, 9:30 a.m.-3 p.m. Edelweiss Acres, Olympia, Wash. \$25 per person; \$7.50 for 4-H members. Go to the website, <http://edelweissacresobers.com/>, or call 360-742-8310.

Holistic Land Planning, 9 a.m.-5 p.m. Create the ideal land plan for your ranch. What is the ideal layout of your fences? Where should infrastructure be located to facilitate animal handling and movement? Kittitas Valley Event Center, 901 E. Seventh Ave., Ellensburg, Wash. Cost: \$227 until April 2. www.rootsofresilience.org

International Fair of Agricultural Technologies Conference and Ex-

hibition, FEXPO Agricola Central, Talca, Chile

Hood River Hard-Pressed Cider Fest, noon-7 p.m., 3315 Stadelman Drive, Hood River, Ore. <http://hoodriver.org/cider-fest/>

Sunday, April 17

Holistic Land Planning, 9 a.m.-5 p.m. This is the continuation of a workshop that began Saturday. Create the ideal land plan for your

ranch. Kittitas Valley Event Center, 901 E. Seventh Ave., Ellensburg, Wash. Cost: \$227 until April 2. www.rootsofresilience.org

Tuesday, April 19

Idaho Range Livestock Symposium, 8:30 a.m.-4 p.m. American Legion Hall, Marsing, 208-896-4104. A one-day traveling program and networking event packed with information on industry relevant topics, for producers and rangeland managers.

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