MORE UI CROP RESEARCH—UI Extension ready to help if fungi threaten 2012 wheat

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STRIPE RUST AND FUSARIUM HEAD BLIGHT (FHB) were the No. 1 and 2 worst threats in 2011 for southern Idaho wheat growers. Both are expected back in 2012.

Stripe rust fungi produce spores that can be carried thousands of miles in the wind to decimate wheat and other small grain crops in states far from an outbreak’s origins. California, Oregon, and Washington wheat growers are battling stripe rust fungi, which could easily spread to Idaho again.

“I am not as concerned about stripe rust overwintering this year, but it’s likely to be damaging to our spring wheat if it blows in from Oregon and Washington. We’ll have to watch very carefully,” said Juliet Marshall, UI Extension cereals specialist and pathologist based in Idaho Falls and Aberdeen.

Marshall already is busy alerting growers at their meetings and via e-mails about the potential threats, and she is training them in the best ways to battle the problems through timely application of fungicides. She is also seeking computer models to better predict potential threats, especially for FHB, which can be particularly severe following a corn crop rotation. While FHB spores don’t blow on the wind as far as stripe rust, they can still spread locally from infected residue.

Southern Idaho’s usually hot and dry summer weather has protected wheat and grain growers here from stripe rust and FHB for years. But moderate summer temperatures with higher humidity, the increased planting of corn as a rotation crop, and irrigated fields are making southern Idaho grain crops more vulnerable to both stripe rust and FHB.

Corn acreage has doubled to 320,000 acres in 2010—up from 165,000 in 1999, in part because of Idaho’s robust dairy industry. Dairy cows eat corn feed. Planting wheat and barley behind corn increases the risk of head blight developing as Fusarium fungi proliferate on corn residue.

“Juliet’s work is important to keep Idaho wheat growers profitable,” says Director Blaine Jacobson, Boise, Idaho Wheat Commission, representing Idaho’s 4,500 wheat growers. “Millions of dollars of wheat crop losses were averted in 2011 by Juliet’s quick observation and documentation of stripe rust in October 2010,” added Jacobson. “She sounded the alarm and recommended fungicide controls begin in early spring. The outbreak was so severe that some growers saw yield reductions of up to 50%. But wheat growers who followed Juliet’s council limited their losses to a 10 to 20% yield reduction.”

Drip helps fertilize Idaho onion crops

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ONION GROWERS are adopting new drip irrigation that allows them to precisely deliver water and fertilizer to their crop’s roots and increases pest control options.

Mike Thornton, Parma Research and Extension Center superintendent, completed the first year of onion growing trials using drip tape. The flexible, flat tubing with pre-spaced holes is typically buried between close-set rows of onions and offers pinpoint irrigation delivery.

“It now accounts for an estimated 35 to 40% of Idaho’s onion production. We had a tour last August for more than 40 producers, many of them young and interested in new technology,” Thornton said.

Drip irrigation allows onion growers easier access to fields with equipment to spray for pests because they don’t have to wait for the furrows to dry. Pesticides may also be applied directly through the irrigation system, opening a more direct route to troublesome insects, particularly nearly microscopic thrips. Drip application of pesticides also reduces worker exposure and may help preserve beneficial insects that feed on thrips.

The shift to drip irrigation requires investment in equipment to pump and filter the water, and that may make growers’ decisions depend on farm finances. Years with good onion prices may encourage more conversions, and bad years may delay them, Thornton said. Grower interest is high enough that the J.R. Simplot Co., plans to sponsor a trial on nutrient delivery efficiency at the Parma R&E Center next summer, part of the company’s 5-year, $1.5 million collaborative research agreement with CALS.

DID YOU KNOW?

111.3 BUSHELS PER ACRE
Average amount of wheat produced per irrigated acre in Idaho in 2010, compared to 64.5 bushels per acre produced on non-irrigated wheat in Idaho.

SOURCE: 2011 IDAHO AGRICULTURAL STATISTICS FROM IDAHO STATE DEPARTMENT OF AGRICULTURE

CALIFORNIA, Oregon, and Washington wheat growers are battling stripe rust fungi, which could easily spread to Idaho again. C ALS wheat breeder Jianli Chen began work in 2007 for the College of Agricultural and Life Sciences at the Aberdeen Research and Extension Center.

Since then, she has focused on developing new varieties of hard white wheat highly prized by flour millers. Near the top of Chen’s priority list are breeding resistance to stripe rust and a drought tolerant in varieties that maintain the high protein so highly prized in hard white wheat.

New releases. In 2009, her program released two hard white winter varieties for dryland growers: UICF Grace and UI Silver. Both have good resistance to stripe rust and top-notch quality.

Existing irrigated varieties’ lack of resistance to stripe rust requires growers of hard white wheat to apply fungicides during the season. The fungicides add to their costs, which growers hope strong market prices in turn offset. Chen is investing a lot of effort into germplasm improvement that is the foundation for new varieties. A particular challenge is developing new varieties for irrigated production.

In 2013, Chen hopes to release a new hard white spring wheat, ID0694, for irrigated production in southern Idaho. It has good protein qualities and high yields while showing good resistance to stripe rust. As a result of the 2011 stripe rust epidemic in southern Idaho, she delayed the release to evaluate that resistance further during 2012.

Using accelerated breeding techniques to develop resistant spring and winter wheat varieties, Chen hopes to help growers avoid at least a portion of their fungicide costs.

An Idaho Wheat Commission endowment will support efforts by both Chen and Juliet Marshall.

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