## **Idaho Innovators**

## Giving grain farmers better tools

## **By BRAD CARLSON** Capital Press

University of Idaho cereal researcher Juliet Marshall studies the environment as much as wheat and barley varieties.

"The varieties that were adapted 30 years ago aren't necessarily adapted now," the Idaho Falls-based plant pathologist said. "The environment is not static and the diseases that are circulating are not static. We have new strains of fungal pathogens that change and viral pathogen strains that change."

Warmer weather, for example, benefits corn. As farmers grow more of that high-water crop, fungi that cause disease in wheat and barley will proliferate.

"Fusarium head blight is one of the bigger ones that is a problem as a result of higher corn production," Marshall said. Barley yellow dwarf is another. The aphid-vectored virus can build up on corn and move to fall-planted wheat and barley.

She is among the researchers collaborating to develop better wavs to control fusarium head blight, which produces a fungus-derived toxin that accumulates on grain. The project with the U.S. Wheat and Barley Scab Initiative has received federal funding.

Marshall said researchers are screening wheat and barley varieties for resistance, and are working to identify the best fungicides to apply as well as the best timing of application.

She said a recently tested fungicide can be applied over a longer period and still reduce the disease and toxin, "so it improves our ability to control the disease. A lot of previous fungicides had a very, very narrow window.'

While rain often gets strong consideration in Midwestern studies of fusarium head blight, Idaho work by Marshall and her colleagues focuses much

perature — particularly when moisture is availevening temperatures that able," Marshall said. Rains are favorable for the funcame in early this August, as corn continued to grow, Unusually warm sum-"and the aphids prefer the mer nights factored into the newly planted wheat and barley seedlings over aging disease appearing in this year's Idaho barley crop corn - increasing the likefarther north and at higher lihood of transferring the elevations than usual, she virus."

producers have to plant

quality and disease resistance.

"The more warm nights

She is also working with

that we have at flowering,

the higher the chances of

infection," Marshall said.

UI colleagues to identify

the pathogen faster using

molecular techniques. That

could help reduce spread

by optimizing fungicide

application amounts and

dwarf, "the difficulty in

reducing virus transmis-

sion from aphids is com-

plicated when our dryland

As for barley yellow

timing, she said.

more on humidity and tem-

gus to infect plants.

said.

Many new cereal varieties are being introduced. Field trials seek to identify disease resistance and yield characteristics suited to a production location while "keeping the quality that the end users really want from those varieties," she said. Baking, milling or brewing standards must be met, for example.

"It's key for our producers to know that there are new varieties out there that will be more economically beneficial and sustainable to them," Marshall said.

Variety trials also benefit seed companies by com-

paring a new release to an industry standard.

## JULIET MARSHALL

Occupation: University of Idaho plant pathologist, professor, head of Plant Sciences Department. Based at UI Idaho Falls Research and **Extension Center.** 

Education: B.S., M.S., University of Delaware, Newark; Ph.D., University of Illinois, Urbana-Champaign.

Age: 57

Home: Idaho Falls

Family: Husband Bill Clark, a commercial wheat and barley breeder. Two adult children.

Hobbies: Gardening, travel, camping.

Idaho's wheat and barley commissions, farmers, crop consultants, breeders and other researchers all support her work.

"I have a lot of collaborators," Marshall said. "The first people who bencereal producers in the area."

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University of Idaho University of Idaho plant pathologist and cereals researcher Juliet Marshall is focused on wheat and barley yield, efit are the stakeholders





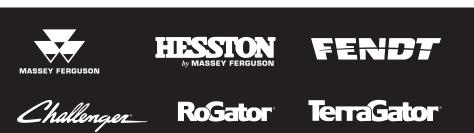


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