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WTARC field day

Western Triangle hosts several MSU breeders, crop researchers at field days

By WTARC Jul 26, 2018



Dr. Alan Dyer, MSU professor of seed and root pathology, talked about improvements in the crop science program at Montana State University's Western Triangle Ag Research Center's summer field day June 26 in Conrad.

A large crowd of some 150 producers and others were on hand to hear the latest research at Montana State University's Western Triangle Ag Research Center's summer field day June 26 in Conrad.

Dr. Darrin Boss, MSU Research Center's Department head and superintendent of WTARC and Northern Ag Research Center near Havre, welcomed everyone with his opening remarks and thanked the sponsors.

Dr. Gadi V.P. Reddy briefly mentioned to the attendees regarding the arrangements done for the day and all the attendees proceeded to fields. Pesticide applicator points were also applied.

Speakers presented research on Montana breeding, varietal testing and entomology programs progressing.

Reddy, MSU professor of entomology/insect ecology, talked about the different entomology programs for pulse crop and insect pests of pulses, particularly a new pest, pea weevil.

Reddy talked about the biology, threshold level and management of insect pests. Producers at field days indicated they were looking forward to having information to solve insect pest problems in their fields.

Reddy introduced other team members: Debra Miller, Rama Gadi and Ramandeep Kaur Sandhi, who are working on pheromone trapping of pea leaf weevil, survey of pea weevil and predatory nematodes for biological control of wireworms respectively. He also thanked USDA-Montana Specialty Block Grant and US Dry Pea and Lentil Council for funding the research work.

Doug Holen, Montana Foundation Seed manager, discussed the MSU Foundation Seed program that provides Foundation seed to statewide producer partners, primarily from the university's spring wheat, winter wheat and barley breeding programs, in addition to oats, safflower, peas and lentils.

Holen talked about breeding efforts to find improved winter wheat varieties as substitutes to Montana's most popular winter wheat variety, Yellowstone.

"MSU's breeding programs are striving to increase recommended varieties with the assurance of genetic purity and quality standards," Holen said.

Jim Berg, MSU research associate in the winter wheat breeding program, thanked the Montana Wheat and Barley Committee for all their support.

Berg discussed winter wheat cultivars for north central Montana and talked about four major wheat varieties: SY Clearstone, Keldin, SY Wolf, and Colter. He explained about yield variation and importance of herbicide and wheat stem sawfly resistance in wheat varieties.

The breeding program is intended to develop improved winter wheat cultivars adapted to Montana. They are developing production strategies to maximize wheat quality consistency, which will enhance wheat marketability. In addition, they are investigating environmental, genetic and management factors that influence wheat productivity and end-use quality.

Later on Dr. Mike Giroux (Professor, Durum Wheat Breeding Program, MSU-Bozeman), explained more about his experience with new durum varieties in Montana and specific important characteristics of varieties with good yield, good root growth, low cadmium, and firmness traits. Further, PhD student Justin explained about importance of pre harvesting sprouting characteristic in spring and winter wheat and barley varieties. The talk also covered other current research projects include testing the role of variation in genes impacting overall plant growth and development.

Dr. Alan Dyer, MSU professor of seed and root pathology, talked about improvements in the crop science program at MSU. While discussing root lesion nematodes, Dyer said a recent survey conducted by MSU that investigated the impact of root lesion nematodes on wheat, barley and winter wheat. These crops can lose about 14 percent of yield due to these organisms. Crop rotation with barley and pulses can help fight nematodes. “Since high numbers of nematodes were found following winter wheat, studies are focused on the development of resistant winter wheat varieties,” Dyer said.

Dr. Hikmet Budak, MSU professor, Winifred Asbjornson Plant Sciences Chair, spoke about new technologies to improve wheat and barley varieties in Montana.

Budak talked about the necessity of higher yielding varieties, and mentioned the work done at MSU including genome editing and greenhouse and field experiments to improve yields and provide insect resistance.

Budak talked about ‘Voice of Montana Farmers’ where farmers can call talk about their concerns and experiences. It will start in September at MSU, Bozeman. Budak’s talk will focus on giving attendees a better understanding of gene transmission.

Dr. Prashant Jha, MSU associate professor of weed science at Southern Ag Research Center, talked about the need to develop a “new regime for herbicide resistance” in Montana.

“Lately herbicide resistance is becoming prominent in Montana, especially glyphosate resistance,” Jha said. He also discussed the necessity of managing seed bank, managing fallow land, crop rotation and strategic tillage to combat the problems of glyphosate resistant kochia and Russian thistle.

Jha also talked about weed management strategies in wheat, pulses, and sugarbeet cropping systems.

Growers do not usually notice resistant plants during the first few years of their appearance, or attribute them to application problems. However, by repeatedly using the same herbicide over time, producers will be selecting for the resistant plants.

Dr. Govinda Shrestha, MSU postdoctoral researcher, in entomology/insect ecology, at WTARC, talked about wheat midge, and its biology and natural biological control agents. Shrestha spoke about actively monitoring wheat midge and its parasitoids and the impacts of changing moisture conditions on both wheat midge and parasitoids in Montana.

He also talked about the biological control of alfalfa weevil by using parasitic wasps and ‘Beetle Gone.’

Shrestha mentioned that parasitic wasps such as “*Macroglenes penetrans*” and “*Platygaster tuberosula*” are known to be present in the Golden Triangle.

Efforts are underway to introduce an additional parasitic wasp species called “*Euxestonotus error*” in farm fields from Saskatchewan to the Golden Triangle area of Montana.

Reddy thanked the Montana Wheat and Barley Committee for funding to carry out this research work.

Dr. Anamika Sharma, MSU postdoctoral researcher, in entomology/insect ecology, at WTARC, spoke about monitoring wireworms in Montana. She talked about experiments regarding cultural and biological control of wireworms by using trap crops and entomopathogenic fungus.

Anamika also spoke about testing biopesticides against canola pests, flea beetle, cabbage seed pod weevil and lygus bugs. Additionally, Reddy mentioned further research work will be planned to identify the attractants for canola pests under funding from USDA-NIFA.

Dr. Pat Carr, MSU superintendent/associate professor in cropping systems, at Central Ag Research Center, talked about canola production in Montana. Canola is a good rotational crop if ideal climatic conditions prevail.

“Canola is a significant crop of the Canadian Prairies and has been grown there for quite some time,” Carr said.

He also spoke about the importance of soil testing for canola cropping. For many irrigators in the cooler parts of Montana, canola has become a significant cash crop in a very traditional cereal grain rotation.

John H. Miller, MSU research scientist at WTARC, spoke about quinoa variety trials in Montana. He talked about last year's climatic conditions, and how it decreased the seed size. "Weather parameters play a major role in growing quinoa," he said. Cooler temperatures and higher moistures are best for high quinoa yields. Miller discussed characteristics of different varieties of quinoa, and suggested producers try quinoa on smaller acreage on their farms, before going large scale.

Dr. Rebecca McGee, ARS-USDA, in Pullman, Wash., spoke about varieties of winter peas. She talked about breeders concentrating on food quality peas and cold tolerance and disease resistance in new pea varieties.

Miller also talked about the new and existing winter pea and winter lentil lines and varieties in continuous crop systems.

Dr. Frankie Crutcher, (Assistant Professor, Plant Pathology, MSU-EARC, Sydeny), talked about disease management in cereals and legumes. She mentioned about Fusarium and importance of working with breeders to improve the variety to make them disease resistance. She briefly explained about the procedure followed to test disease resistance. She mentioned about root rot in peas and lentils and in progress trials to test fusarium resistance. Currently grower's needs information on the disease management practices so Dr. Crutcher talk was informative to the cereal growers and participants in general.

Dr. Chengci Chen, (Superintendent/Professor of Agronomy, MSU-EARC, Sydney) about pulse crop variety performance in different environments in Montana. He spoke about different varieties and their performance in 2017. He mentioned that although Desi peas are not in high demand but Desi are more heat and drought tolerant. In order to enhance yield and quality, information on varietal testing and improved agronomic management practices is needed. The

Eastern Agricultural Research Center (EARC) of Montana State University (MSU) is currently coordinating a series of statewide dry pea, lentil and chickpea variety evaluation projects across Montana.

Dr. Charles Boyer, MSU vice president and dean/director of agriculture, thanked producers, collaborators and the advisory committee for their efforts to improve various agricultural programs at Montana State University.

Pesticide applicator points were also applied to those attending the field day.

Boss said he appreciated the efforts put in by the WTARC team to organize the event. Julie Orcutt, WTARC administrative associate, Shad Chrisman, farm mechanic and safety coordinator and other WTARC staff “worked hard and were part of the event.”

Sponsors for the field day were: Stockman Bank, Central Crop Consulting, Anheuser-Busch and CHS Inc.