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Montana Agricultural
Professionals receive training
By Gadi V.P. Reddy and Anamika Sharma, Montana State University, Western Triangle Agricultural Research Center, Conrad, Montana

A professional development program (PDP) workshop was conducted at the Holiday Inn, Great Falls from March 7 to 8, 2019. The project was funded by Western Sustainable Agriculture Research & Education (WSARE). The purpose of this workshop was to build agricultural professional’s understanding of pheromone-based monitoring techniques in order to incorporate them into current integrated pest management programs.

The workshop was attended by 35 people including 10 speakers. The workshop agenda is available at the link, http://agresearch.montana.edu/wtarc/fielddays-pdfs/2019.pdp.pdf. Dr. Gadi V.P. Reddy as a principal investigator, welcomed the speakers and attendees and spoke about the importance of the workshop. The pre-received presentations were printed in color in the form of handouts to allow the participants to take notes and were placed in folders provided to each participant. At the conclusion of the workshop, all the attendees received a participation certificate.

Dr. Fabian Menalled, Western SARE Regional Coordinator highlighted SARE programs and also some of the research work that he and his team has been doing on pollinator diversity.

Dr. David Weaver, Professor of Entomology from Montana State University spoke about efforts and research done on pheromone trapping for wheat stem sawfly. Although pheromone compounds were identified in 2002, the pheromone baited traps have not been exploited fully in managing the pest. The field experiments conducted at Western Triangle Ag Research Center and Bozeman have indicated that yellow colored traps baited with pheromone attracted higher number of adults than the traps with other colors. He also indicated the issues encountered during the entire process of development of an effective pheromone trap for wheat stem sawfly and future perspective. He also presented an app (iPIPE) developed for monitoring the wheat stem sawfly population by processing the data such as location, trap and sweep numbers, and postharvest stub count.

Dr. Maya Evenden, Professor from University of Alberta, Edmonton, Canada described the efforts developing trapping methods for pea leaf weevil, bertha armyworm, cutworms and wheat midge. In Canadian Prairies, the importance and interest of using pheromones traps is increasing. Ultimately, these traps will help us not only for monitoring pest populations but also can be incorporated as one of the tools in pest management programs. The results shown by Dr. Evenden indicated that plant volatiles can be effective to monitor pea leaf weevil when used with pheromone traps. Whereas wheat midge traps can predict population density but not the crop damage. Armyworm and cutworm food baits were tried, and both sex responded differently. She also raised the concern that the addition of semiochemicals also attract non-target insects, such as pollinators.

Dr. Boyd Mori, Entomologist from Agriculture and Agri-Food Canada, Saskatoon, Canada presented monitoring methods for the insect pests of quinoa. Dr. Boyd indicated goosefoot grounding moth, leaf-mining/stem-boring fly, bertha armyworm, and mird bugs as major insect pests of quinoa in Canada. Other minor insect pests are flea beetles, silver-banded moth, and a leaf miner. He indicated pheromone traps can be a good monitoring tool for insect pests.

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of quinoa in future. Quinoa has been a new crop in Montana and has been grown under dry land conditions at the research center in Conrad for the last two years. This crop requires moisture so it will be grown under irrigated conditions during the summer of 2019.

Dr. Janet Knodel, Professor & Extension Entomologist from North Dakota State University, Fargo delivered information on the use of pheromone traps being used to monitor the insect pests in North Dakota. She spoke about wheat midge, bollworm and cotton, diamondback moth as insect pests of wheat and bertha armyworm, Swede midge, flea beetles as insect pests of canola. She presented population data of these insect pests of wheat and canola. She also presented data on monitoring of insect pests of sunflower crop. She spoke about increased population of banded sunflower moths and monitoring by using pheromone traps. She also indicated that populations of other two moths, arthuri sunflower moth and sunflower moth are increasing on sunflower crop.

Dr. John Gavloski, Entomologist from Montana Agriculture, Canada presented information on using pheromones for monitoring insect pests in canola particularly in Manitoba provinces. He discussed the diamondback moth, bertha armyworm, Swede midge, canola flower midge, flea beetles, and cabbage root maggots in North Dakota. He pointed about various pheromones used to monitor these insect pests of canola in Canada. He mentioned about issue of attracting bumble bees in the traps. He also made participants aware that the population collected by traps sometimes only indicates the presence of insect pests and might not provide correct population data, hence a keen monitoring of insect pests is required in the region. He also mentioned that a spray decision cannot be taken just on the basis of population collected in traps.

Dr. Christine Noronha, Entomologist from Agriculture and Agri-Food Canada in Charlottetown, Prince Edward Island, Canada presented information on research being done on the monitoring methods of click beetles. She spoke on greater length about use of light traps to collect click beetles, use of pheromone granules for mating disruption in click beetles, and movement of wireworms horizontally and vertically in soil throughout the year. Her presentation enlightened the participants about lesser known behavior of wireworms. She also talked about a crop rotation of brown mustard, buckwheat and barley as possible management tactic to control wireworms.

Dr. Gadi V.P. Reddy and Dr. Anamika Sharma, both entomologists/ecologists from Western Triangle Agricultural Research Center, gave an outline on the theory, types and applications of pheromones. This included some of the field research done at the University of Guam and Montana State University. Dr. Sharma presented information about basics of pheromones, their classification, extraction, preparation of synthetic pheromones, types of traps, and use of traps. Dr. Reddy demonstrated several relevant examples of usage of various type of pheromone traps to monitor insect pests.

Dr. Mike Ivie, Associate Professor of Entomology from Montana State University spoke about monitoring tools and techniques for insect pests in Northern Plains. This included demonstration of various trap designs and their practical use. He also elaborated about uses of killing agents, and correct manner to use sweep net. He explained the use of variety of traps for different insects.

Dr. Kevin Kastoff, Extension Entomologist presented information on the research and extension work done on alfalfa weevil monitoring in the Northern Great Plains. Dr. Wanner gave some thoughts on the possible identification of pheromones for alfalfa weevil. He also spoke about summer dormancy and degree day model to study the population dynamics of the insect pests of alfalfa and canola.

This day and half workshop received high evaluation scores. Thanks to the staff of WTARC and highly qualified speakers that spoke about insect pests significant to Montana crop production.

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