



# SMART DAY

SOYBEAN MANAGEMENT & RESEARCH TRANSFER

MPSG hosted its annual Soybean Management and Research Transfer Day at the University of Manitoba Ian N. Morrison Research Farm in Carman, MB, on July 20. A total of 85 people participated in the day, an equal mix of farmers and agronomists.

Five agronomy lessons were taught by 13 public sector researchers and extension specialists from four institutions. Participants were split into groups to encourage engagement and networking among attendees and presenters. Lessons focused on helping farmers and agronomists identify and manage production constraints in soybeans and soybean crop rotations. Current soybean research being conducted at the research farm was showcased and results were presented when available. Below is a brief tour of the day, including presenter information, their topics, and their take-home messages.



## Soybean Aphids and Predators: Scouting and Management

1 Jordan Bannerman showed participants how exclusion cages are used in entomological research and demonstrated the effect of aphid populations with and without exposure to natural predators. Jordan assisted participants in estimating aphid populations and discussed the aphid action and economic thresholds. Sticky traps nearby were used to demonstrate the diversity and abundance of natural local predators.

2 Dr. Alejandro Costamagna demonstrated the use of malaise traps and their use in estimating insect movement between landscapes. He explained results of his recent research, which found differences in soybean aphid suppression by natural predators based on type of vegetation surrounding the soybean field.

3 Dr. John Gavloski found natural aphid predators using a sweep net in the nearby soybean field. Participants were quizzed in their knowledge of insect identification and learned about the potential of each to suppress soybean aphids. John also showcased some defoliating insects.

## Seed Handling for Improved Emergence

4 Dennis Lange, armed with damaged seed samples and On-Farm data of seed damage from various operations, advised participants to conduct a soak test to determine seed quality. Dennis emphasized the value of quantifying seed viability and moisture prior to seeding operations to not only adjust seeding rates accordingly, but also identify the potential for destructive handling operations.

5 Terry Buss showcased soybean plots of various plant populations and the consequences of poor emergence. His popular “when should I seed?” decision matrix made an appearance, outlining his discussion on soil temperature, calendar date, 24-hour forecast and tolerance to risk factors.

## Soybean Nitrogen Dynamics

6 Dr. Yvonne Lawley discussed the role both inorganic soil nitrogen (N) and symbiotic rhizobia bacteria play in soybean crop nutrition. She discussed results of small-plot inoculant trials, testing the efficacy of numerous inoculant strategies and the MPSG recommendations for single versus double inoculation, which is based on results from On-Farm Network trials. Leading into a discussion on fertilizer N for soybeans, she addressed the need to assess crop N sufficiency and the balance between soil and biologically fixed N in contributing to crop nutrition.

7 Dr. Navneet Brar presented her results from the first year of a starter N fertilizer trial for soybeans. She demonstrated how chlorophyll content, nodule number and soil N levels changed over the growing season under various N fertility regimes. Participants toured this year’s plots, where the same phenomena occurred. The lack of yield and seed protein response to starter N at the end of the season supports best management practices: a properly inoculated soybean crop will not require supplemental N.

8 John Heard advised participants about how to handle a crop that did not have successful inoculation. Reminding us of growth stages where peak N uptake occurs and N nutrition is critical for optimizing yield, John advised participants to assess nodulation at R-1 to R-2, ensuring at least 10 nodules per plant were present and to apply rescue N fertilizer if necessary at R-3 to R-4 (early pod fill). Demonstrations of crop injury from broadcast granular urea and dribble banded and sprayed UAN showed participants how detrimental foliar fertilizer applications can be.

## Soil Erosion and Management

9 Marla Reikman led a conversation on vulnerability of soil to erosion – wind erosion, in particular. Talking through the effect of tillage and rolling on soybean production, participants learned about the trade-off between potential agronomic gains, such as improved emergence or harvestability versus topsoil and nutrient loss, soil crusting and compaction.

10 Mitchell Timmerman used a rainfall and wind simulator to physically show participants how soil type, landscape and management practices can influence water movement and risk of soil loss.

11 Patrick Walther walked participants through corn residue demonstration plots, allowing them to witness the effect of growing soybeans under no-till, disced and strip-tilled residue. With the plot-sized strip-till equipment on display, participants learned of his On-Farm research results which measured little difference in soil moisture, temperature, soybean emergence or yield amongst the various residue regimes.

## Soybean Disease Management

12 Debra McLaren presented her latest results from her current soybean root rot surveys. Participants were among the first to hear about the prevalence of Phytophthora race distribution in Manitoba. Debra brought samples of various Fusarium isolates, and explained her work in developing diagnostic techniques for rapid disease identification.

13 Kristen Podolsky described how the use of root rot survey results could be used to help growers manage root rots. She covered various management strategies, including crop rotation, variety selection and seed treatments and their effectiveness for the various root rot pathogens. In addition, Kristen reviewed the symptoms of foliar and stem diseases and presented results from the On-Farm Network fungicide trials.

