

On-Farm Evaluation of Fungicide in Soybeans

Fungicide application at first bloom (R1) to full flower (R2) significantly increased soybean yields 14% of the time. Soybean yield was not frequently limited by Septoria brown spot or white mould in these trials.



THE ON-FARM NETWORK (OFN), MPSG's in-house research program, began investigating soybean yield response to fungicide application in 2014. Over the past six growing seasons, there have been a total of 59 soybean fungicide trials across the province using randomized and replicated strip trials in farmers' fields. These trials compared soybean yield with and without a single foliar fungicide application intended to control fungal diseases, including Septoria brown spot, frogeye leaf spot and white mould. Product choice (e.g., Acapela, Cotegra, Delaro, Priaxor) was at the discretion of the farmer, and all applications were made according to label rates at the recommended timings of R1 (beginning bloom) or R2 (full flower).

Among the 59 trials, there were only nine statistically significant yield responses to fungicide application, eight of which were positive. This means fungicide

application significantly increased soybean seed yield 14% of the time. Additionally, all significant responses occurred in three of the six growing seasons – 2015, 2017 and 2018 (Figure 1). Septoria brown spot and white mould disease pressure were also reduced by fungicide in most responsive trials.

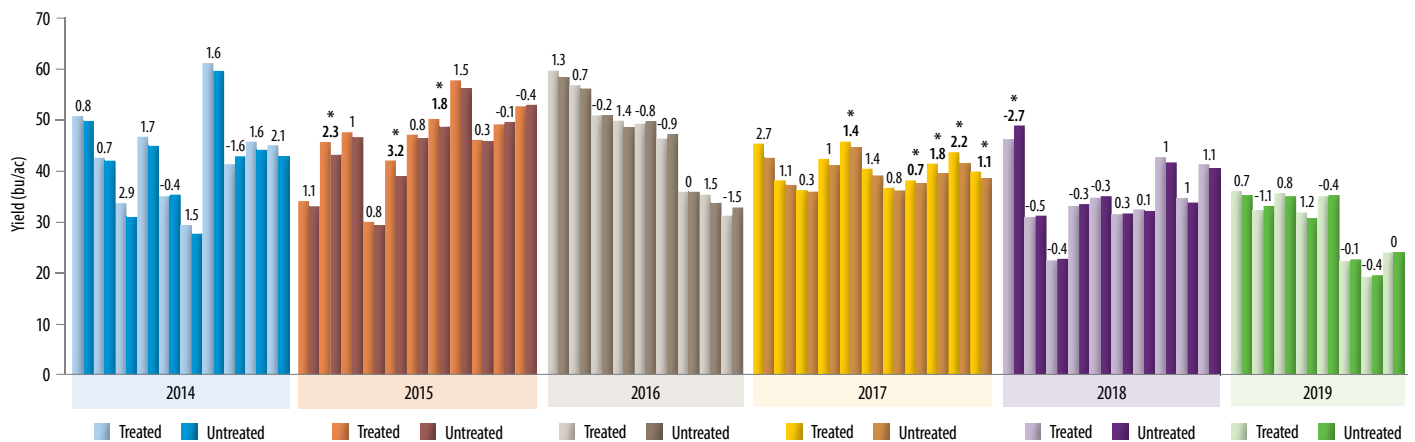
The variability of yield benefits from fungicide application across growing seasons is not a surprise. The extent and severity of disease pressure is typically inconsistent across years and dependent on growing season conditions. Fungicide application is also expected to protect yield only when fungal disease pressure is significant enough to be limiting.

Infrequent soybean yield response to foliar fungicide application (14%) is also not surprising. In Manitoba, soybean yield is not often limited by Septoria brown spot, frogeye leaf spot and white mould. This

disease pressure was low overall within responsive trials, minimizing our expectation of a yield response from fungicide. Farmers' input decisions involve a number of factors, including balancing the cost of product and application with the risk of yield loss from pest pressure. Consideration should also be given to the expected frequency of a positive outcome. This means a given yield increase from fungicide must pay for itself in the current successful year, and also pay for prior years in which the product did not improve yield.

For more information on each of the OFN soybean fungicide trial sites and results, visit manitobapulse.ca/on-farm-network.

Figure 1. Yield difference (indicated by the value above the paired bars) between soybeans with foliar fungicide applied (treated) and soybeans without foliar fungicide (untreated) for individual On-Farm Network trials from 2014–2019.



Numbers above bars indicate yield differences between soybeans with a single foliar fungicide application and untreated soybeans. * Statistically significant yield difference at $p < 0.05$.

PRINCIPAL INVESTIGATOR Manitoba Pulse & Soybean Growers – On-Farm Network

MPSG INVESTMENT \$255,733
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