On-Farm Evaluation of Fungicide in Field Peas

on-farm network
PARTICIPATORY • PRECISE • PROACTIVE

A single application of fungicide at early flower significantly increased pea yields 28% of the time. A second application of fungicide improved pea yield over a single application 44% of the time.

MYCOSPHAERELLA (ASCOCHYTA) BLIGHT is the most common foliar disease in peas in Manitoba, infecting the majority of pea crops each year. Peas are the single host crop of this disease, and it is the main target of foliar fungicide applications.

The On-Farm Network (OFN) began investigating pea yield response to fungicide applications in 2017. Over the past six growing seasons, there have been a total of 44 trials across the province evaluating pea fungicide using randomized and replicated strip trials in farmers' fields. Of those trials, 25 have investigated a single application vs. none, 16 have compared a single vs. double application, two compared a single vs. double vs. none and one trial has compared double vs. no application.

Product choices (e.g., Delaro, Dyax, Cotegra, Priaxor, Headline, Miravis Neo, Zolera) were at the discretion of the farmer and were applied according to label recommendations at early flower (R1 to R2). If a second application was tested, it was applied 10 to 14 days after the first.

Among the 25 trials comparing a single application of fungicide at early flower vs. untreated strips, there have been seven statistically significant yield responses. A single fungicide application increased pea yield 28% of the time over no application. Yield increases ranged from 1.4-12.5 bu/ac (average: 4.6 bu/ac). Assuming a product cost of $21.25 and a pea sell price of $10/bu, five of the seven significant trials were economical, providing a return on investment of $1.75-$104.08/ac (average: $36.05/ac).

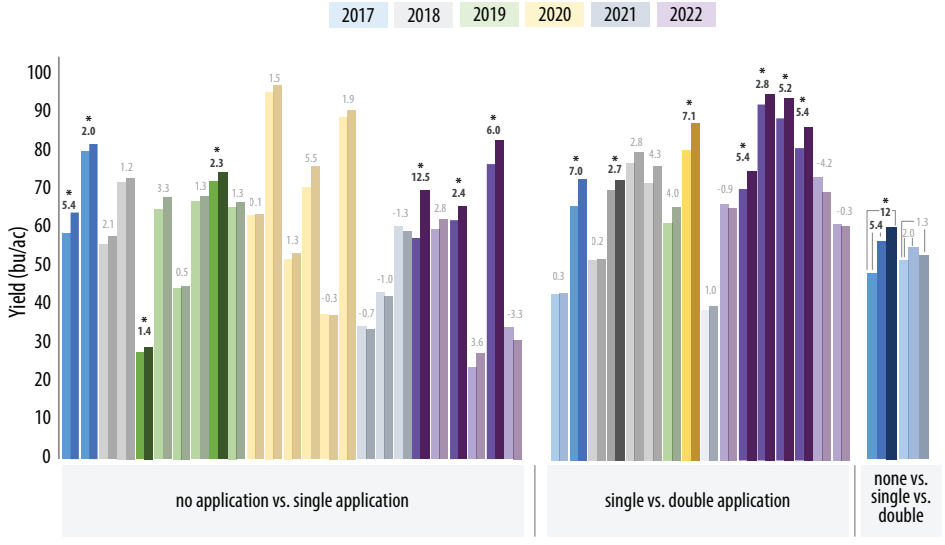
During the dry years of 2019, 2020 and 2021, it was more common to ask if a fungicide application was necessary at all due to the dry growing conditions. In those years, risk of disease development was low, leading to fewer instances where foliar fungicides paid.

Among the 16 trials comparing two fungicide applications to a single pass, there have been seven statistically significant yield responses. Two fungicide applications increased pea yield 44% of the time, improving yield by 5.1 bu/ac, on average (range: 2.7-7.1 bu/ac). Considering the same economic assumptions as above, all seven of those yield responses were economical, providing an average return on investment of $29.70/ac (range: $5.75-$50.15/ac).

Disease ratings began in foliar fungicide trials in 2019 to further explain yield responses. Of the significant trials from 2019 to 2022, Mycosphaerella blight severity was often reduced by fungicide. In most responsive trials with large yield differences, there was also commonly a reduction in white mould incidence in single vs. none or single vs. double application trials.

To determine if a fungicide application is likely to be beneficial, consult MPSG's *Fungicide Decision Worksheet for Managing Mycosphaerella Blight in Field Peas.*

For more information and results on each of the OFN pea fungicide trials, visit manitobapulse.ca/on-farm-research-reports.



Numbers above bars indicate yield differences between treatments. *Statistically significant yield difference at $p < 0.05$.

Figure 1. Yield difference (indicated by the value above the paired bars) between peas with no application of fungicide vs. a single application, and peas with a single application of fungicide vs. a double application, from individual On-Farm Network trials from 2017-2022.

PRINCIPAL INVESTIGATOR Manitoba Pulse & Soybean Growers On-Farm Network

MPSG INVESTMENT $317,416

CO-FUNDER Canadian Agricultural Partnership

DURATION 6 years, ongoing