In the late 1990s, fungicide application was the most important control method for Sclerotinia stem rot of canola for most producers. Researchers at Agriculture and Agri-Food Canada conducted a three-year study from 1998 to 2000 to determine the effect of low-drift nozzle technology on foliar fungicide application, to compare effectiveness of the products benomyl (Benlate) and vinclozolin (Ronilan) on disease suppression, and to determine if there were interactions among application methods and products. Overall the results indicated that both fungicides were highly effective, and that venturi nozzle technology was appropriate for use with foliar fungicides for sclerotinia control in canola, provided pressures were adjusted to optimize nozzle performance.

Sprays of Ronilan and Benlate were applied to canola at the Melfort Research Station with four application methods to
determine the impact of nozzle type and pressure on sclerotinia stem rot suppression of canola. Spray treatments were applied at 100 L/ha at the 20-30% bloom stage of flowering using a Melroe Spra-Coupe 220 and hollow cone, conventional flat fan and venturi-type flat fan nozzles each year. An unsprayed check was included.

The research showed that both fungicides were highly effective, reducing stem rot in treated plots and increasing yield over the unsprayed check in two of three years. Variation in product performance among years indicated that environmental conditions have a major effect on the disease and subsequent yield loss. Overall, conventional flat fan nozzles (TeeJet XR) and low-drift venturi nozzles (Greenleaf TurboDrop) were equally effective at reducing disease. Both 40 and 80 psi provided similar performance, although increasing the venturi nozzle pressure to 80 psi improved disease control and yield slightly. Neither product or application method improved thousand-kernel weight, bushel weight or % green seed over the unsprayed check.

The results of the lab studies on spray retention showed that the majority (88%) of spray was intercepted by the top third of the canola canopy for all application systems. Flowers and buds retained nearly 20% of the total applied spray dose, and this
amount was increased when pressure was increased. Stems retained a very minor proportion of the applied dose. Coarser sprays delivered more of their dose in the target area, but had lower retention values on flowers and buds than finer sprays.

Overall the results indicated that venturi nozzle technology was appropriate for use with foliar fungicides for sclerotinia control in canola, provided pressures were adjusted to optimize nozzle performance. Applicators seeking low-drift spray technology to protect non-target areas and extend their window of application with respect to wind can be advised to use coarse sprays such as those in this study. Additional information on these nozzles was provided in the factsheet “Making Sense of New Nozzle Choices”.

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