

## ***New Nozzles Reduce Spray Drift ~ AgTech Centre Canada***

### **New nozzles reduce spray drift**

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A new line of sprayer nozzles, called venturi-type nozzles, reduces spray drift without sacrificing uniformity of application. A recent study conducted by engineers at the AgTech Centre in Lethbridge, Alberta shows Venturi nozzles can potentially reduce drift by over 90 percent.

New to North America, the nozzle is designed to produce fewer, but larger spray droplets, says Brian Storozynsky, AgTech Centre sprayer project manager. "This design reduces drift, yet uniformity of application and chemical efficacy are not compromised."

The secret of the Venturi nozzle's impressive drift reduction capabilities is in its design. The nozzle works by passing spray solution through a tapered passage in the nozzle. As the passage diameter decreases, the spray is accelerated. At the tapered passage outlet, the acceleration creates a natural vacuum, causing air to be sucked from outside the nozzle tip through one or two small holes. The spray solution and air mix in the chamber before exiting the nozzle tip. Compression in the mixing chamber results in air bubbles forming inside the liquid spray droplets. This produces the larger spray droplets, which are less likely to drift.

Reduced drift means less waste and big savings for farmers, he says. Reduced drift also lessens the risk of environmental contamination. "An added advantage for farmers is that the Venturi nozzle tip fits into existing nozzle caps."

The Venturi nozzle's designed pressure range also significantly impacts spray drift. "High-pressure Venturi nozzles reduce drift by 60-90 percent over Spraying Systems' wide angle Turbo TeeJet nozzle, well known for its good performance in windy conditions. Lower pressure Venturi nozzles resulted in a 35-60 percent reduction," says Storozynsky.

Low-pressure Venturi nozzles are most effective at reducing drift when set at 40 psi and high-pressure Venturi nozzles operate best between 70 and 80 psi, he says. Low-pressure nozzles are recommended for pull-type sprayers that have booms operating at normal heights and when spraying with chemicals requiring application uniformity. High-pressure Venturi nozzles are suggested for high-clearance sprayers operated above recommended nozzle spray heights.

A TurboDrop venturi/Turbo TeeJet tip combination proved the most effective in the AgTech Centre study, averaging more than 90 percent drift reduction, says Storozynsky. “This combination is excellent for reducing drift, but farmers must be cautious as the spray droplets are coarse and may negatively affect herbicide efficacy.”

But technology is only as good as the person using it, Storozynsky says. “Operator skill and following product recommendations will ensure the technology performs to its designed capacity. This is even more true for Venturi nozzles.”

The Agtech Centre’s full report on Venturi nozzles, Airborne Spray Drift with Venturi-Type Nozzles, as well as the June 2001 edition of the AgTech Innovator, which outlines sprayer developments and provides tips on sprayer use, are available upon request from AgTech Centre, 3000 College Drive, Lethbridge, Alberta, Canada, T1K 1L6. Phone: (403) 329-1212, fax: (403) 328-5562. AgTech Centre specialists can also assist producers with selecting suitable sprayer technology and can offer help with understanding spraying guidelines.