



SOUTH AFRICA

Benefits of air-assisted electro-magnetic spraying highlighted

I & M Smith (Pty) Limited in Johannesburg, South Africa, is promoting the benefits of air-assisted electrostatic spraying machines, which, it believes, significantly enhance insect and disease control; reduce the amount of chemical applied; cut the application water used by half, and reduce waste and off-target drift by more than 50 per cent, compared with conventional spraying machines.

The machines that the company is promoting are manufactured by ESS of Watkinsville in Georgia in the US.

Air-assisted electrostatic sprayers manufactured by ESS produce spray droplets which are 900 times smaller than those produced by conventional sprayers. The tiny droplets are carried deep into the plant canopy in a high-speed air-stream. The result is more than twice the deposition efficiency of both hydraulic and non-electrostatic air-assisted sprayers, the company claims.

Electrical charging causes a natural force of attraction between the spray droplets and the plant, similar to the attraction between items of clothing created by the tumbling of a clothes dryer. The charge on the droplets is small, but the force pulling the spray towards the plant is up to 75 times greater than the force of gravity. Droplets literally reverse direction and move upwards, against gravity, when passing a leaf surface.

This phenomenon by which the spray coats the undersides of the leaves and the stems is known as electrostatic 'wrap-around.'

Spray coverage can be described in terms of the uniformity of spray droplets on plant surfaces. Electrostatic sprayers achieve greater spray coverage, notes Lionel de Roland Philips of I & M Smith, by combining air turbulence with tiny, evenly sized spray droplets. Dense under-leaf coverage results from electrostatic wrap-around.

"The benefits are clear," Mr de Roland Philip explained: "Insect and disease control are better because the chance of contact is greater. Chemical burn is reduced because chemicals do not accumulate in large single deposits, and low-volume spraying requires 10 to 25 times less water carrier than standard spraying because of the uniform droplet size and improved coverage characteristics achieved by the electrostatic sprayer."

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