



ELECTROSTATIC SPRAYING SYSTEMS FOR ROW CROPS

4 times Better Coverage on Leaves

6 times Better Coverage on Hidden Areas

9 times Reduction in Soil Deposition

Only 5 to 9 Gallons per Acre

ELECTROSTATIC = BETTER SPRAY COVERAGE

It's That Simple!





The 700RC

- 72 to 108 nozzles
- 55 to 66 foot boom
- 150 gallon tank
- 2500 lbs dry weight

The 450RC

- 38 to 68 nozzles
- 30 to 60 foot boom
- 150 gallon tank
- 2300 lbs dry weight



Newly designed row crop sprayers for

High-flow MaxCharge™ electrostatic nozzles

- Capable of higher liquid flow rates; cover more land quicker
- Maximum electrical charge on spray; strongest wrap-around affect
- Increased air-assist power; penetration into densest canopy with the finest spray
- Easy to disassemble & clean; no tools required
- Ceramic tip; lasts twice as long

Lobbed-blower technology

- Higher air volumes with less horse power
- Rotating lobes rather than pistons and valves for less maintenance
- Over 500 hour maintenance interval for more time in the field
- Produces clean, oil-free air

Tubular aluminum spray booms

- Strong, yet lightweight

Increased air volume output

- Better canopy penetration
- Helps in crosswind conditions
- Increases charging in all chemical mixes

Low-volume spraying

- Cover up to 30 acres on a single tank fill
- Works with all chemical classes

Stop wasting your chemicals

Testing by four major universities comparing ESS with conventional and air-blast sprayers shows 300% better spray penetration and coverage onto hidden areas of dense foliage. These studies also show that **only 15% to 20% of the spray from your conventional or air blast sprayer ends up on the plants.** Nearly 60% of your chemical goes wasted on the ground. Less than 3% reaches the undersides of leaves and other hidden areas. For every \$100 you spend for chemicals, only about \$3 worth ends up where you need it. Wouldn't you rather see the chemicals on the plants where they're needed?

Figure 1. Comparison of sprayers demonstrating coverage on plants vs. on the ground. (Western, 1993)

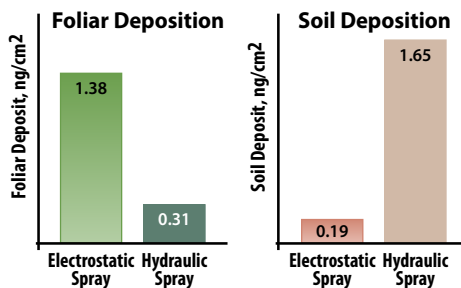


Figure 2. Spray deposition on leaf surfaces is 10 times greater using air-assisted electrostatics. Droplets per sq. cm on leaf upper and lower surfaces by computer vision.

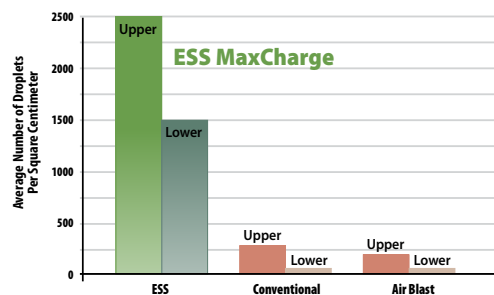


Figure 3. These charts show that a poor 15% to 20% of the spray from your conventional or air blast sprayer ends up on the plant. Compare this to the poor 15% to 20% of the spray from your conventional or air blast sprayer ends up on the plant.





For hassle-free, unmatched coverage.

Only 5 to 9 Gallons per Acre

More spraying time between tank fills equals more acres covered each workday. Since ESS sprayers require much less water to do the job, one tank can provide hours rather than minutes of spray time. The photos on this page show sprayers operating at only 5 to 9 gallons per acre. At this low rate ESS sprayers still create over *ten times* the number of spray droplets of a 300 GPA conventional sprayer. Now you can spray up to 30 acres on a single 150-gallon fill and one sprayer can do the work of two.

Quick Payback

Better coverage allows the use of some very low chemical rates for a fast investment payback. Most growers can reduce costs by 30 to 60% and still see better results from their spray program. In one year a 275-acre specialty lettuce farm saved 602 gallons of spray for a savings of \$35,599 in chemicals while spraying six times.

Dependable, Maximum Spray Charge Nozzles

ESS systems use the MaxCharge™ spray nozzle - the most effective electrostatic nozzle available and the easiest to work with. MaxCharge means maximum charging for the best spray coverage.

Easy to disassemble and clean

MaxCharge is 10 times faster to clean than other electrostatic systems. Just twist off the nozzle's cover - no tools are required. There are no small parts to lose and no wire at the tip to break.

Environmentally Sound

Environmental benefits include reduction of chemical waste and the improved results from low-toxicity chemicals. ESS is safer for workers - exposure is reduced since the frequency of tank filling is much less than conventional sprayers.

ESS Air-Assisted Electrostatic Sprayers. The smart way to spray.

Full Hydraulics on both models

The 350RC

20 to 36 nozzles
16 to 30 foot boom
150 gallon tank
950 lbs dry weight

The 150RC

14 to 20 nozzles
10 to 16 foot boom
100 gallon tank
900 lbs dry weight

Approximately 60% of ESS's spray covers 5% of conventional sprayers.

Conventional Sprayer



Figure 4. Charging level is important for electrostatic coverage. The new MaxCharge system outperforms all others.

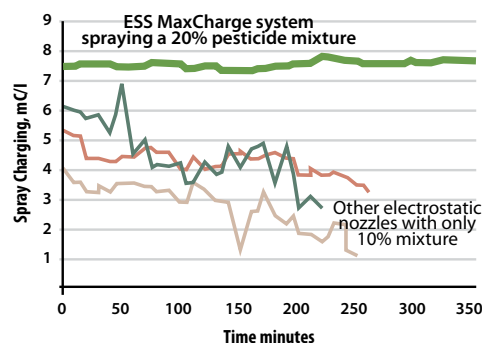


Figure 5. MaxCharge nozzles have increased air volume for proven maximum plant canopy penetration.

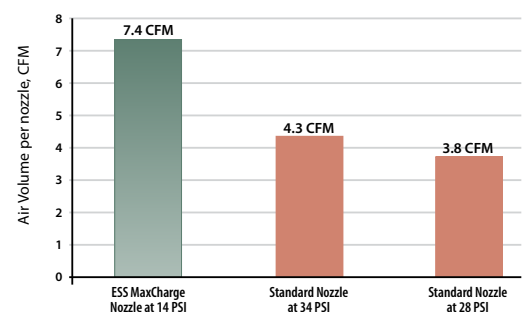
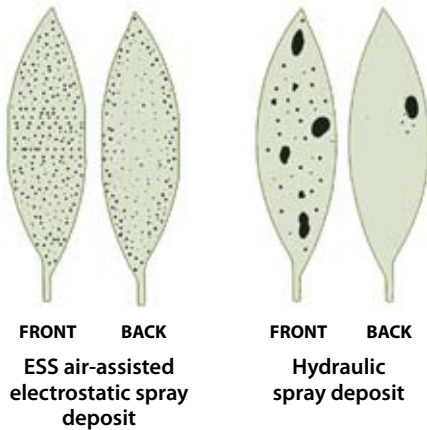




Photo credit: The University of Georgia.

Trajectories of charged spray: The white lines in this photo are the flight paths of spray droplets from an ESS MaxCharge nozzle. The electrical charge causes a “wrap-around” phenomenon as droplets are pulled to both sides of the leaf with a force that is 75 times stronger than gravity. The nozzle is out of the picture to the left — about 24 inches away from this leaf.



Illustrations based on microscope evaluations of spray deposits on plant leaves. The coverage with the air-assisted electrostatic sprayer is a fine powder coat which is well distributed on both sides of the leaf. Hydraulic sprayer droplets (right) vary widely in size and often “puddle” on the leaf.

What is Air-Assisted Electrostatic Spraying?

Air-assisted electrostatic sprayers manufactured by ESS produce spray droplets which are 900 times smaller than those produced by conventional sprayers. These 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.

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 remarkable phenomenon by which the spray coats the undersides of the leaves and the backsides of the stems is known as electrostatic “wraparound.”

Spray coverage is the uniformity of spray droplets on plant surfaces. Electrostatic sprayers achieve greater spray coverage by combining air turbulence with tiny, evenly sized spray droplets. Dense under leaf coverage results from electrostatic wraparound. The benefits are clear: 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.

Low-volume spraying requires 10 to 25 times less water carrier than standard spraying. This is possible because of the uniform droplet size and improved coverage characteristics achieved by the electrostatic sprayer.

For more information on electrostatics, including University tests and field results, please request our free report:

What Growers Should Know About Electrostatic Spraying

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Visit ESS on the
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