Reducing drift with innovative electrostatic spraying system

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Since 1981, when Martignani became the first European company to introduce electrostatic spraying equipment, the company’s innovations have won various awards in a number of international competitions such as EIMA Bologna, SIMA Paris, etc. At the ninth edition of Enovitis in campo, held in Treviso, Italy in June this year (an event dedicated to the testing of machines for vineyards), Martignani’s Duo Wing Jet Hill Low Volume anti-drift sprayer, took the 2014 Innovation Challenge, Enovitis in Campo award, and was also a winner of the EIMA 2014 Technical Novelty Award.

This new version of the electrostatic sprayer system with recovery without recycling, is suitable for sloping lands: it greatly facilitates the use of recovery technology in hilly areas giving a strong contribution to environmental sustainability. These and other innovations by Martignani have transformed the landscape of the industry in diverse markets including crop spraying, amenity and public health and have created a state of the art trend amongst other manufacturers leading to numerous imitations of its electrostatic spray technology throughout the world.

Reducing the dispersal of chemical sprays to a minimum during plant treatment operations was the principal objective that Martignani set out to achieve in developing the Duo Wing Jet. The sprayer uses two protective screens with regulated cushions of pressurized air, which capture droplets which may have escaped the electrostatic field. According to the phenological state of the plants, the operator can regulate volume, velocity and impact of the air flow of the electrostatic spray nozzles as well as the size of the micro-droplets. Moreover, the blower the operator can adjust the dosages of the treatment in relation to the plant characteristics. The Duo Wing Jet does not recycle the applied pesticide but produces an anti-drift effect to minimize chemical residues. Like other Martignani equipment, the sprayer’s electrostatic spray nozzles apply an identical electrical charge to the emitted micro-droplets which means that they are attracted to the vegetation.

With this innovative technology the Duo Wing Jet is able to reduce water used for operations by 90%, lower work time and manpower by 70% and achieve a 95% drift-free effect, while reducing the quantity of the product applied to the plant by 45-50%.

Martignani has obtained numerous official test results for its electrostatic system by both university research institutes in Italy and by similarly recognized institutions abroad. When compared to air blast sprayers with conventional high pressure nozzles, pneumatic sprayers with low water volume, electrostatically charged micro-droplets were shown to be much more effective, using 90% less water, 25-30% less chemicals and 70% less dispersion into the soil (Run-Off). With the electrostatic charge turned off, the equipment still offers an average 25-30% reduction in active ingredient consumption and 70% less drift.

In public health and vector control, there have been ongoing practical trials and research in South East Asia, mainly for the purpose of dengue control. Results have shown that in these trials, Martignani public health machines have proven to perform well in adulticide and larvicide applications with high results in mortality indexes, due to the combination of proprietary electrostatic spray system technology.

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