



MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE

Recommendation Sheet

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AIR-INCLUSION NOZZLES FOR MANUAL SPRAYING OF HERBICIDES

Fine droplets produced by conventional nozzles (conejet, floodjet and flat-fan) are prone to air-borne drifts and, irrespective of the herbicide treatment, may cause phytotoxicity to neighbouring susceptible foodcrops.

Air-inclusion nozzle is a new generation of flat-fan nozzles producing medium to coarse droplets of uniform size. This is achieved by air-inclusion inside the nozzle through a 'venturi' system. The air-inclusion wide-angle (110°) nozzle has a swath of 80-90 cm at a working height of 30-35 cm; two passes are required per interrow of sugar cane planted at 1.6 m spacing.

These nozzles have been tested on knapsack sprayers for herbicide application in sugar cane and have been found to be as good as or superior to conventional nozzles. Moreover they have the following advantages:

- air-borne drifts are significantly minimized
- volume of spray mixture is reduced
- efficiency of sprayerman is increased with respect to double conejet nozzles.



Spray pattern with air-inclusion nozzles

Recommendations

The air-inclusion (wide-angle) nozzle is recommended for herbicide application in both pre- and post-emergence of sugar cane and weeds, particularly in the vicinity of susceptible foodcrops. The choice of the colour tip will depend on volume of water to be used. Comparative volumes are shown in the following table:

Colour tip (ISO colour-coded)	Delivery rate (L / min)	Volume of Spray Mixture*	
		L / ha	L / arp
Yellow	0.8	225	100
Lilac	1.0	280	125
Blue	1.2	350	150

Notes * Volume based on a walking speed of 0.75 m/s, two passes per interrow and a working pressure of 300 kPa (3 bars)

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