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WPRS International Organisation for Biological and Integrated Control
West Plalaearctic Regional Section
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Section Régionale Ouest Palaéarctique

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Effective spray drift reduction in fruit growing by the use of coarse droplet spray applications

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Use of excessive airflow and fine spray nozzles is usually responsible for spray drift during spray applications in orchards. The reduction of the emission of plant protection products to the environment is an important issue. For a long time fruit growers have been used to spray with fine droplet spectra which were assumed to be most effective and to reduce spots and visible residues on the fruits. In the Netherlands priority is given to introduce low drift nozzles (coarse droplets) in fruit growing, because: (i) low drift nozzles can be used on every (already in use) orchard sprayer; (ii) low drift nozzles do not require high investment costs from the grower; and (iii) introduction of low drift nozzles for orchard spraying can be fast. In practice, fruit growers were reluctant to chance from fine droplet applications to coarse droplet applications because of (i) clogging of this type of nozzles, (ii) fear of reduced biological efficacy, and (iii) fear of increased visible and measurable PPP-residues on fruits. Trials and projects carried out over a number of years, showed that using coarse droplet applications result in similar biological efficacy compared to conventional nozzles for all important pests and diseases in pome fruit orchards. No differences exist in average residue levels or visible residue between fine and coarse droplet applications. Practical problems, such as clogging of nozzles and relatively high spray volumes were solved in cooperation with with fruit growers, advisors, and nozzle & sprayer manufacturers.

Keywords: spray drift reduction, biological efficacy, orchard sprayer