Drift reducing nozzle systems for space cultures

[1]Zb. Czaczyk and [2]G. Bäcker
[1]Institute of Agricultural Engineering, Poznań University of Life Sciences
Wojska Polskiego 28, PL60-637 Poznań, Poland,
[2]Department of Viticultural Engineering, Geisenheim Research Center,
Von-Lade-Str. 1, D65366 Geisenheim, Germany.

Abstract

Lasting application technologies in the plant protection are not imaginable without drift reducing nozzle systems. In grapes, hop and orchards especially airs including nozzles comply with this requirement and so are more and more spreading in practical use. During development and qualifying of those drift reducing nozzle types, beside the investigations of suitability in practical use and drift behaviour quite a lot of droplet size measurement are required. In this case laser diffraction turned out as one of the most suitable methods. Recent developments of droplet size measuring equipment are easily to handle and distinguished on very comfortable software.

Beside the well known air including nozzle types like Albuz AVI 80 and Lechler ID 90 the recent recommendations for practical use also include types as Agrotop AIRMIX, which seems to be especially suited for the helicopter spraying. As air including nozzle type for space cultures also the recent development from Albuz, TVI 80 seem to be very interesting. This hollow cone type is distinguished on smaller flow rates in comparison with other types of air including nozzles.

The paper gives a view over the current supply of drift reducing nozzles types. Moreover it draws a comparison of droplet size distribution and makes an assessment of application quality, drift behaviour and practical suitability. As well it sums up experiences with the new easy manageable droplet size analyser ISITEC by Malvern.

Key words: spray nozzles, spray drift, viticulture, droplet size, laser diffraction, crop protection

*Corresponding author, Email address: czaczykz@up.poznan.pl