Problems of resistance

Efficient application techniques are needed

Inferior spray distribution and run-off

Labour intensive

High operator exposure

Labour-intensive

High operator exposure

Optimization of spray application technology in ornamental crops

Introduction

Ornamental plant production: small but important business in Flanders

- 11.42% of horticultural production surface, 35% of horticultural production value

Current practices in pesticide application

- Application technique: mainly small handheld sprayers
  - Inexpensive, flexible in use
  - Easy to maintain
  - Adequate for localized spraying
  - Spray can be "thrown" quite far
- Plant protection products (PPPs)
  - Decreasing availability of authorized PPPs for ornamentals
  - Mainly contact PPPs or PPPs with limited systemic action
  - Dosage expressed as concentration (e.g. 7.5 mL 100 L⁻¹ spray volume)

Labour-intensive

High operator exposure

Problems of resistance

Efficient application techniques are needed

Solution? (automated) spray booms?

- Although studies showed that spray booms can:
  - Improve spray distribution, coverage
  - Reduce labour cost & operator exposure
  - Reduce off-target deposition

- They are still not widely used in practice
  - Commercial systems are expensive
  - Questions about settings: nozzle? volume? pressure?...

Usability in ornamentals? diversity in crops and production systems

Objective: Optimal spray boom settings?

Spray deposition and spray coverage

- Deposition
  - Mineral chelate tracers
  - Filter paper collectors
  - ICP analysis
- Coverage (%) & number spots cm⁻²
  - Water sensitive papers
  - Image processing

Experimental set-up

- 6 collector plants, 6 collector positions
- Dense crop: ± 33 plants m⁻²
- Off target losses

Materials & Methods

- 4 collector plants, 20 collector positions
- 1.1-1.2 m crop height, sampling zones I (0.02<\text{LAI}<0.04) and II (0.08<\text{LAI}<0.10)