

# Spray calibration

## Flow rate meter

Calibrating the spray boom regularly ensures chemicals are applied evenly and at the right rate, reducing costs and preventing crop and environmental damage.

The flow rate refers to the output of fluid from the spray nozzles along the spray boom. It is measured as the volume, in litres of liquid, that passes through each nozzle per unit of time.

Measuring the flow rate at the nozzle is critical to ensure that the correct amount of fluid passes through.

This will:

- ensure chemicals are applied evenly and at the appropriate application rate
- reduce waste, potential crop damage and environmental damage
- indicate if nozzles are damaged or worn and need to be replaced.

Flow rate at the nozzle tip can easily be measured using a handheld electronic flow meter, which is placed below each nozzle. Individual measurements will show nozzle flow differences and indicate if adjustments are needed.

## Have a go:

The flow meter consists of a collection vessel with a sensor in the form of an electrode at the top and bottom. As the water fills the vessel, it measures the rate of the water filling as it moves over the electrodes within. The measurement is shown on the display screen of the meter.

### Before you start

The flow rate for the nozzles' output must be determined, as set out by the manufacturer's requirements. This will provide a benchmark to set for the nozzle flow rate.

### KEY POINTS:

- Check the nozzles are delivering the correct amount of spray at any given time to optimise spray performance and reduce waste.
- Identify nozzles which are damaged or worn.
- Accurately measure the true nozzle flow rate.
- Takes 60 seconds per nozzle.
- Nozzles should be calibrated every season, when application or chemical rate changes, when nozzles are changed and at 50% of the anticipated life of the nozzle.

The spray boom must be cleaned and filled with water and remain stationary.

The spray boom can then be turned on, with the pressure set to the required level to meet the chemical rate required for the spraying operation.

### Using the flow meter

Using gloves, the flow meter is placed directly under the running nozzle where it collects the water. As the meter fills with water, the display will start flashing, which indicates that the reading is in progress. Water will slowly fill the container and flow over the sensors. Once full, after approximately 60 seconds, the flow



meter can be removed from under the nozzle. The screen will display the flow rate in litres per minute.

Once the rate is recorded, the water can be tipped out from the flow meter and the next nozzle can be measured.

### **Check your results**

Nozzles that have a flow rate varying by 10% above or below the manufacturer's rated output may be worn or blocked. These nozzles should be removed, inspected, and replaced.

Nozzles require regular calibration, specifically when the application rate or chemical rate changes, when new nozzles are installed, and at 50% of the expected lifespan of the nozzles.

## **More information**

### **Spray calibration fact sheets**

- Patternator
- Pressure tester

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