



Technical notes - Calibration

The dictionary describes the word “calibration” as meaning:

To ascertain the calibre of something, or to standardise something – or words to that effect.

In the world of spray application, it means to select and set up the nozzles to achieve a given spray rate to the canopy, usually expressed in litres per hectare of application, but it can also be in litres per 100 metres of row-canopy (tree row volume method), or litres per tree, in some cases. Most labels express the desired application rate in litres per hectare, so this is most commonly used.

It is a very important to calibrate your sprayer for your intended application. It may be that you have several calibrations done for varying application rates – i.e. to match the canopy growth stage for example, or for dilute application and for concentrate application.

Below is a simple calibration worksheet for a sprayer, spraying one 3.5 metre row at a time, with 7 nozzles each side of the sprayer (total = 14 nozzles), travelling at a spraying speed of 6 km/hr and an intended spray application rate of 500 litres per hectare.

Nozzle Selection Worksheet			
	Formula		
Target rate (L/ha)	500	Speed (km/hr)	6
Row spacing (m)	3.5	Number of rows	1
Number of nozzles	14		
Total L/min =	17.5	L/min per nozzle	1.25

Using this formula, we now know that we require a total liquid output of 17.5 litres per minute to achieve our desired application rate of 500 litres per hectare, and that the average nozzle output needs to be 1.25 litres per minute. So why do I say “*average*” output per nozzle?

The answer to that statement, is that you need to consider that some nozzles may need a higher output than others to match the volume of canopy to which they are directed. This is often the case, especially in tree crops, where the largest part of the canopy volume is in the upper half of the tree, and which is furthest from the nozzle positions directed at that part of the canopy. In that case, a *higher proportion* of the total spray volume may be needed in say the top four nozzles each side, and less in the bottom four nozzles. This is *very common* in tree crops, and often overlooked when a calibration is done. Many sprayers I inspect have the same nozzles top to bottom, resulting in less than effective spray coverage in relation to the canopy volume up the tree.

Want to know more about how to calibrate effectively? Pick up the phone and give us a call.