



CALIBRATION OF MISTBLOWERS

1 Calibration of forward speed

See page 8: Calibration of field sprayers (note that the tractor PTO should be 540 rpm, which will allow the blower to operate at its maximum capacity)

2 Calculation of nozzle size and pressure

After determining your forward speed and choosing your application rate according to the recommendations on the chemical container, the total nozzle capacity can be calculated on the following formula (based on driving in each row):

$$\frac{\text{Row spacing (ft)} \times \text{GPA} \times \text{MPH}}{495} = \text{total GPM}$$

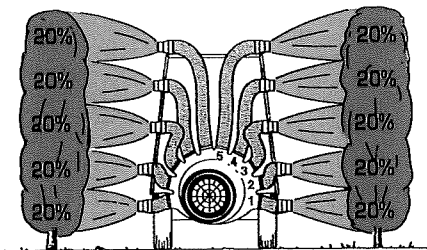
Example Row spacing: 18 ft
Application rate: 40 GPA
Forward speed: 3 MPH

$$\frac{18 \text{ ft} \times 40 \text{ GPA} \times 3 \text{ MPH}}{495} = 4.36 \text{ GPM}$$

The total nozzle capacity is 4.36 GPM. This amount has to be divided between all the nozzles on the mistblower. Two examples are described in the following:

a Nozzle calibration when equal output from each nozzle is desired

From the drawing you can see that, because the foliage to be sprayed is evenly distributed, the output from each of the 10 nozzles is the same. This is calculated as follows:



$$\frac{\text{Total GPM}}{\text{Number of nozzles}} = \text{capacity of single nozzle in GPM}$$

Example
 $\frac{4.36 \text{ GPM}}{10 \text{ nozzles}} = 0.44 \text{ GPM}$

In the 1299 nozzle chart you will find the nozzle closest to the desired output at a suitable pressure – Red nozzle at 110 PSI has a capacity of 0.45 GPM.

We recommend that you double-check the nozzle output with a measuring jug (with clean water in the sprayer). You can do this by disconnecting the blower and direct-

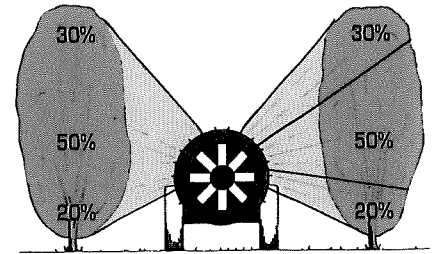
ing the water into the jug, using a hose. If exactly 0.44 GPM is desired, the pressure can be adjusted with the pressure adjustment formula:

$$\left(\frac{\text{New output (GPM)}}{\text{Known output (GPM)}} \right)^2 \times \text{Known pressure (PSI)} = \text{New pressure (PSI)}$$

Example
 $\left(\frac{0.44 \text{ GPM}}{0.45 \text{ GPM}} \right)^2 \times 110 \text{ PSI} = 105 \text{ PSI}$

b Nozzle calibration when nozzle output must be adapted to the crop

The drawing shows 8 nozzles pointing to each side. We can use the same example as in a), with a row spacing of 18 ft, forward speed of 3 MPH and desired application rate of 40 GPA.



In this case nozzles 1 and 8 are shut off
2 and 3 apply 20 % = 0.44 GPM (each nozzle applies 0.22 GPM)
4 and 5 apply 50 % = 1.09 GPM (each nozzle applies 0.54 GPM)
6 and 7 apply 30 % = 0.65 GPM (each nozzle applies 0.33 GPM)

Chosen from the flow table on page 19 giving the following combination at 110 PSI:

Nozzle 2 and 3: 1299-14 orange (0.24 GPM)
Nozzle 4 and 5: 1299-18 green (0.58 GPM)
Nozzle 6 and 7: 1299-12 yellow (0.32 GPM)
These do not correspond exactly with the desired, as the total capacity would be 4.56 GPM instead of 4.36 GPM. The correct pressure can be calculated with the pressure correction formula at 101 PSI.

$$\left(\frac{4.36 \text{ GPM}}{4.56 \text{ GPM}} \right)^2 \times 110 \text{ PSI} = 101 \text{ PSI}$$

Use the HARDI® calibration disk (order No: 285546) for easy nozzle selection and calibration.

