

**Doug Sands** ☎ 07 49837403 📠 07 49837459 ✉ douglas.sands@dpi.qld.gov.au  
**Susan Maas** ☎ 07 49837401 📠 07 49837459 ✉ susan.maas@dpi.qld.gov.au

## Planting Dates

Apologies to the Dawson growers for not including their new planting window in the last newsletter. Following is summary of all planting windows as they stand at the moment.

Region	Start Date	End Date	No. of Days
Central Highlands	15 <sup>th</sup> Sep	31 <sup>st</sup> Oct	46
Dawson Valley (Ref.Theodore)	25 <sup>th</sup> Sep	5 <sup>th</sup> Nov	42
Dawson Valley (Ref.Charlie Brimblecombe)	15 <sup>th</sup> Sep	31 <sup>st</sup> Oct	46
Belyando	10 <sup>th</sup> Oct	25 <sup>th</sup> Nov	46

## Low Drift Nozzles

With cotton planting moving into full swing and lots of preplant and postplant herbicide being applied, its worth spending some time on nozzle selections.

When looking at nozzle charts most manufacturers will give a classification of the droplet size produced by that nozzle under a specific pressure level. Normally these classifications will be:

Very Fine(VF), Fine(F), Medium(M), Coarse(C), Very Coarse(VC) and Extremely Coarse(XC).

These classifications are based on ASAE (American Society of Agricultural Engineers) standards and BCPC (British Crop Protection Council) specifications. **They are not rough estimates.** These Classifications relate to the actual size of droplets and the range of droplet sizes that can be produced by a particular hydraulic nozzle under a specific pressure range. For example Table 2 gives some typical droplet size data for specific nozzle classifications.

**Table 2.**

Nozzle Classification	Droplet sizes in Microns(µm)		
	Dv0.1	Dv0.5	Dv0.9
Very Fine	70	150	280
Fine	90	180	320
Medium	160	300	480
Course	220	430	820
Very Course	270	520	740
Extremely Course	310	600	880

# Microns = 1/1000 of a millimetre

**Dv0.1** = 10% of droplets by volume sprayed are below this size

**Dv0.5** = 50% of droplets by volume sprayed are above this size and 50% are below this size

**Dv0.9** = 90% of droplets by sprayed volume are below this size

Obviously these numbers change within each nozzle type, size and pressure range. It is important that you look at the nozzle charts for droplet size information before selecting a nozzle type. It's also important to note that you always have a proportion of smaller droplets in every spray pattern.

To put this information into perspective, a normal aerosol will produce droplets of 70-80 µm. A common rule of thumb for the spraying of herbicides is to use a nozzle that will produce 50% or more of its droplets above a 250 µm diameter at normal operating pressure. This relates to a **Medium** droplet classification or better.

To further prove this point, an examination of some droplet survival data in relation to a climatic conditions is necessary.

**Table 3. Droplet survival under conditions of a ΔT of 10 (30°C, 39%RH)**

Droplet size (µm)	Survival time (sec)	Survival distance (m)
50	3.13	0.12
100	12.5	1.87
200	50	30
400	200	480

The above table illustrates the benefits of having most droplets above 200 microns in terms of droplet survival and travel. The jump from 100 micron to 200 microns gives you 4 times longer to get the droplet to the target, before it evaporates.

*The bigger droplet also has a much larger gravitational pull and is therefore less influenced by local wind turbulence. A 200 micron droplet will travel 15 times further than a 100 micron droplet under its own kinetic energy driven by gravitational pull. Both these factors are important when considering the potential for chemical drift.*

For herbicide application, a spray quality of **Fine** or **Very Fine** should never be used. This means that Standard Flat Fan nozzles such as XR or TP should not be used for herbicide application. At the very minimum a drift reducing flat fan such as a Drift Guard (**DG**) nozzle should be used or better still an Air Induction (**AI**) nozzle type that produces mainly **Coarse** to **Very Coarse** spray quality.

*A new nozzle put out by Teejet has the potential to reduce the risk of spray drift even further by producing an **Extremely Course** spray quality at a range of pressures from 1 - 7 bar. This nozzle is called the **TTI** and relies on an air induction system like other AI nozzles however it does not need to be run at high pressures to maintain spray quality. This type of nozzle would be very useful when spraying around high risk areas.*

The biggest issue with big droplets is in getting the optimum coverage. The easiest way around this problem is to simply use a bigger spray volume per hectare. This will slow down the capacity of your sprayer, however you may only have to do this when you are operating in high risk areas of the farm.

**(Refer to SPRAYpak for more information).**

## Area Wide Whitefly Management Project

A reminder to all 35 growers in the Central Highlands who are participating in this project, to fill in their paddock data forms and fax them back to Amanda Noone in the next 2 weeks. If you have not received your paddock data sheets in the mail yet, please let me know. I realise everybody is either planting, irrigating or harvesting but most of the information is very easy to fill in (it will not take long).