

# **Plan the Spray – Spray the Plan And Avoid Spray Drift**

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## **Introduction**

Reducing spray drift has to become a priority for broad acre producers.

Every incident of spray drift that has occurred in our cotton growing areas has one common factor - an error in the judgment made by the applicator. If applicators had appropriate knowledge of nozzle outputs, droplet behaviour and the influence of weather, then planned and conducted their sprays accordingly, spray drift could be eliminated.

It is a community responsibility to encourage those who need to improve their application technique to attend training and change their spray practices for the benefit of the whole industry.

## **Trends in Spray Drift Problems**

Appropriate information and equipment is readily available for applicators to reduce the potential for spray drift to occur, yet the problem continues to plague our industry. What may have once been acceptable between neighbours is no longer being tolerated, as claims for compensation for the damage caused by spray drift are increasing in frequency and value.

Despite this trend, selected areas were able to eliminate spray drift in the 2005-2006 season by being proactive. The Jimbour Flood Plain on the Darling Downs is one of those areas. In an initiative by the Brigalow-Jimbour Flood Plain Management Group and local growers, a series of practical drift management workshops, supported with nozzle subsidies, were conducted before the major fallow spraying periods in 2005 and 2006. Growers from this area have been happy to report that no incidents of spray drift occurred last season, in comparison to the remainder of the Darling Downs where approximately 7 percent of area grown to cotton was affected in some way by spray drift.

## **Common mistakes and misconceptions about application**

Many applicators are simply not aware of how much of the chemical they are applying is actually leaving the fields when they are spraying. The amount of product that can move is a function of droplet size, conditions and total amount of product applied in a given period. Applicators also underestimate how far those products can actually move in a range of conditions, not just under temperature inversions.

There is a common misconception that fine droplets are required for efficacy. This is certainly not true for many products. For fully translocated or systemic products what is required is simply to get enough of the product onto the actual target. Recent trial data from government departments, chemical manufacturers and grower groups demonstrate that coarse droplets provide equivalent or better results in most situations.

### What can be done to address these mistakes?

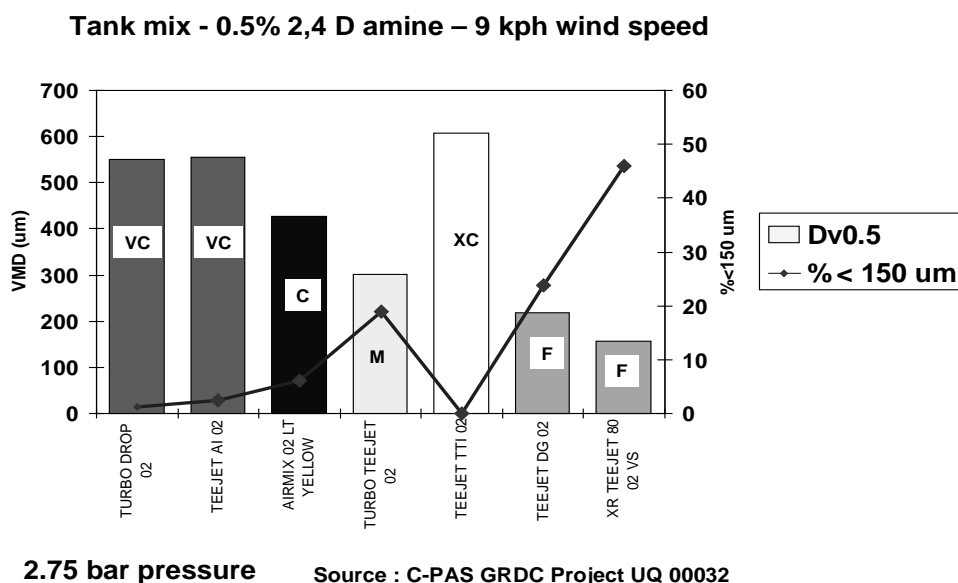
We have to get our communities educated about what really happens to our products when we go spraying, how much can be lost and what we can do about it. We can all contribute by improving our own knowledge and encouraging our neighbours to do the same, and to invest in spray nozzles that will greatly reduce drift potential.

### New Application Technology to Assist

A number of nozzles are now available that produce coarse, very coarse and even extremely coarse spray qualities at low pressures (between 2 and 5 bar) which make them suitable for use with centrifugal pumps and automatic rate controllers.

A coarse spray quality will usually reduce the driftable fraction (those droplets less than 150 micrometers) of the spray to below 10 percent of the total volume, and an extremely coarse spray quality can reduce the driftable fraction to less than 2 percent. As an example, the recently released Spraying Systems Air Inducted TurboTeejet® 110-02 (TTI) at pressures below 2.75 bar will produce no droplets less than 150 micrometers, see Figure 1.

**Figure 1.** Spray Quality, VMD and Percent of Volume under 150 microns for various nozzles with product included in the tank mix.



## **Future Application Issues for Cotton Growers and Applicators**

Many people have expressed concerns that the release of Flex® varieties will increase the number of spray drift incidents. When compared with the narrow window of application for RoundupReady® varieties, Flex® varieties should result on less pressure on the spray operator to get applications done in a relatively short period of time and allow spraying to be undertaken during better environmental conditions. This should reduce drift potential, provided the most appropriate droplet spectrum is selected for the prevailing conditions, the product and the target.

In relation to spray drift, we should be concerned about the potential impacts of damage to environmental areas and increases in Maximum Residue Limit violations onto adjacent crops. If these incidents continue we are likely to see changes to our patterns of use and access to many products in the future. We have already seen changes to the labels of products containing 2,4-D and the planned withdrawal of the highly volatile formulations of these products. We should see these changes as a ‘wake-up call’ about how we use the products available to us.

I also hold some concerns about the longer term impact that the increased loading of many products onto the soil with the increased use of coarse droplets. When comparing the use of coarse spray qualities to the traditionally used fine or medium spray qualities we can expect up to 20 percent more active ingredient to reach the soil with every application. The impact of a greater loading of many products on factors such as soil biodiversity and water quality is yet to be fully determined.

### **Broad recommendations to reduce spray drift.**

We must accept that spray drift is a community and industry issue and take responsibility to improve our own spray practices and encourage our neighbours to do the same. Over the next three years CRDC and GRDC are supporting workshops on spray application (including drift management) throughout the cotton growing valleys. If you know someone that could improve their application technique and timing, invite them (or drag if necessary) to a workshop or training on spray drift management. For more information contact your local cotton industry development officer.