

Nozzle Selection Increasing Efficiency For Spray Contractors

Case Study

By Mika Rowston

The spray tractor is one of the most used pieces of machinery on the farm and is often the most neglected. Generally, the most overlooked part of the boom are the nozzles. Nozzle type and size determine water volume, droplet size and appropriate coverage – all crucial to ensuring a successful spray job. Depending on the chemical being applied – whether it is a systemic (larger droplets), or a contact (finer droplets) – the pesticide will determine the ideal droplet size and water volume required.

Depending on crop stage, equipment availability and timeliness, many growers engage spray contractors to apply their pesticides. Spray contractors need to be across all levels of chemical regulation and compliance. They also need to provide their clients with the best application possible and in a timely manner because, in a spray contractors world, time is money.

Chris Kimber is a spray contractor based in the Lower Burdekin. With his John Deere 4730 self-propelled spray rig he sprays over 10,000ha a season in a variety of crops including sugarcane, soybeans, mung beans, maize, green beans and fallow. The variety of crops Chris operates in requires him to be extremely flexible with water rates and droplet sizes, depending on weather conditions and the agronomist's recommendations. Chris is relatively new to the agricultural spraying industry, and in early 2022 he engaged the Project Bluewater team to provide support to him regarding nozzle selection.

Project Bluewater spray specialists conducted a full operational assessment of Chris' spray boom: assessing pressures, spacing, spray swath, overlap, nozzles, rate controller and pump capacity. Following the assessment and based on client's agronomic requests, Chris was provided with a recommendation for three main nozzles.

The nozzle recommendations will allow Chris to maintain similar speeds while varying water rate and droplet pattern, which allows him to be as efficient as possible. Chris can also control potential off-target movement by understanding the capacity of each of the nozzles he uses.

When spraying near sensitive areas, Chris can adjust application pressures or change nozzles to reduce driftable fines and keep the chemical where it needs to be – in the paddock.



Burdekin spray contractor Chris Kimber with his John Deere 4730 spray rig.

“Being involved in Project Bluewater has made nozzle selection easier. Knowing when to use a certain droplet is very important to my spray jobs; I can manage my drift when near sensitive areas and maximise the effectiveness of my sprays for my clients. If I can keep all the chemical in the paddock, it's better for the crop, the client and the environment.”

Chris has also attended training workshops run by the Project Bluewater team, which aims to make record keeping clearer and easier for growers.

Chris's case highlights the fact that there is no one-size-fits-all approach to nozzle selection and application. To do the best possible job, spray operators should ask the question: is this the best nozzle and droplet for the job I'm doing? 🌱



Maize is one of the main crops Chris sprays. Coverage and penetration is key to controlling certain pests such as the Fall Army Worm.

Situation	Nozzle Requirement
Fallow control (glyphosate, 2,4-D etc.)	Low water rate, VC-XC droplets
Contact insecticide/fungicides/herbicides	High water rate, M-C droplets
Systemic insecticides, partially systemic herbicides	Medium water rate, M-C droplets

“Compliance and regulation is a big thing for me as a commercial operator. The Project Bluewater team has made everything much clearer for me and also helped me with record keeping.”

If you would like more information or would like to improve your chemical applications, contact the Project Bluewater team