



OPTIMIZING THE APPLICATION OF PEST CONTROL PRODUCTS IN WILD BLUEBERRIES

The application of pesticides in wild blueberry can be a challenging task. Wild Blueberry fields, in Nova Scotia, tend to be on old farm land that is imperfectly levelled and often on higher ground that can be exposed to wind. Spraying at the correct timing and getting optimal coverage with minimal drift is the challenge for any pesticide applicator, but wild blueberry producers have some unique challenges that make it difficult to get the product applied in an effective way. This factsheet will highlight some basic considerations to help apply pesticides safely and effectively in wild blueberry.

BOOM HEIGHT

Most conventional nozzles work optimally when the boom is 50 cm above the target. We know drift increases as boom height increases and canopy penetration decreases as boom height increases. In most wild blueberry fields it is very difficult to keep the boom at 50 cm above the target, due to the rough nature of the ground and the often rolling topography of the fields. As booms get wider, applicators tend to raise the boom further, to avoid damage and boom tips driving into the ground.

There are a couple things to consider implementing to keep the boom lower and improve performance and reduce drift: 1) Drive slower – this allows the operator to maintain a more consistent boom height and manually adjust the boom; 2) Explore automatic boom levellers – these systems use sensors to automatically adjust height of individual sections of the boom and keep them an ideal height off the target; 3) Use a smaller boom – there are

obvious trade off with this (takes longer, more chance for misses and overlaps) but it allows the applicator to keep the boom closer to the target, particularly in rougher fields.

OVERLAP AND MISSES

The move to GPS and auto-steer systems has increased rapidly over the last couple of years. The technology has become much more reliable and accurate than it was in the early days. Everyone has heard those stories of a sprayer losing signal in the middle of a field and the driver having to wait until the satellites reconnect. This very rarely happens now.

The move to auto-steer allows for spraying in the evening and not having to worry about the foam marker disappearing before you get back to the field with the next load. The next big thing related to this technology, is individual nozzle control. Most wild blueberry fields are irregularly shaped and with a three or four zone boom, a lot of product is double applied or areas are missed. Individual nozzle control systems, automatically shut off the nozzle when it gets to an area that has already been sprayed (ie. border spray, pinch point in a field). This saves money and reduces stress on the applicator.



Photo Credit: Travis Esau, PhD, PEng, PAg, Assistant Professor, Mechanized Systems, Department of Engineering, Faculty of Agriculture, Dalhousie University



FACT SHEET

MARCH 2020 | ©Perennia 2020

NOZZLE SELECTION

Everyone is looking for that one magic nozzle that will do everything they need. Unfortunately it's not that simple. For most farms, in most fields, drift reduction is the biggest concern. Making sure the product gets to the target is the most critical factor. As a result, many applicators have gone to air-induction or ultra-low-drift (ULD) nozzles. These nozzles reduce drift and help get the product to the target, with a much larger spray droplet. The question is often asked, are these the best nozzles in all situations?

Smaller droplets do provide better coverage in ideal spray conditions, so a regular flat fan nozzle, like a 11002XR, would provide great coverage with a low boom and lower wind conditions. This would work especially well for things like botrytis or leaf rust controls, where there is a denser canopy and penetration is more important. However, with increasing wind conditions a 12002 ULD, would give a much bigger droplet and would still get the product to the target. Having a triple nozzle turret, and having these two nozzles on that turret would allow for a quick change in changing conditions. Both nozzles would have the same output at 40 psi.

Having a smaller spray droplet nozzle (11002 XR - yellow), a ULD nozzle with the same output (12002 ULD- yellow) and a larger ULD nozzle (12003 ULD - blue) in the triplet nozzle turret gives the applicator flexibility to apply the product correctly, in varying conditions and how the individual product works.



KNOW HOW THE PRODUCT WORKS

Not every product works the same way and how a product works can often determine the ideal nozzle and droplet size. Velpar is a soil applied herbicide that is taken in through the root systems of emerging plants. When applying this herbicide, there is never a need to use a small droplet, only use large droplet nozzles. There is less risk of drift and the product will move into the soil, as there is very little plant material on the soil at the time of application.

A product like Bravo, a protectant fungicide, must have adequate coverage of the leaf to prevent infection from fungal spores. For this application a smaller droplet nozzle tends to give better coverage of the leaves in the canopy in ideal conditions. If there are misses and a spore lands on that spot, the leaf won't be protected.

When trying to control a grass with a product like Venture or Option, it is important to consider the target. Grasses are thin and tend to stand straight up, it makes them harder to wet and larger droplets tend to bounce or roll off them. In ideal conditions a smaller droplet nozzle may work better as it will stick the grass blade easier.

With all of these situations, the weather conditions play a major role. Wind speed will often make the nozzle selection decision for you. As a result, applicators need to realize there is often a trade-off, getting the application done at the right time or with the ideal spray quality. For most applications the larger droplet does not reduce efficacy significantly, but there are specific instances where it could.

FINAL CONSIDERATIONS

Taking the time to consider all of these factors, and others can help improve the efficacy of every application. With tightening margins, it is critical that every input gets the maximum return on investment. As a result we need to put more thought into everything we do. Properly maintained sprayers and precision applied treatments are things every farm can do to minimize environmental impact and optimize the investments in these inputs.

Peter Burgess MSc, PAg, CCA
Wild Blueberry Specialist
Perennia Food and Agriculture Inc.
March, 2020