



THE PULSE AGRONOMY NETWORK
PARTNERSHIP WITH INDUSTRY



PAN - All Pulse Bulletin #5 – May 25th, 2010

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Spraying and Droplet Size

An email conversation with Tom Wolf, AAFC - Saskatoon

Producer's question:

We have aim command on our sprayer where we have fantastic control of droplet size with the nozzles we choose (same as with the other nozzle and sprayer types) for the water volume. There is little mention of the optimum droplet size for the various chemicals under ideal and less than ideal situations – most growers tend to cut chemical rates without knowing or understanding the risks of reduced control or drift.

On our farm I think we do a great job on the drift, but would like to reduce our expenses when conditions are right or ideal for chemical spray application. To generalize, a fine or medium droplet for Roundup applications is most effective and for almost all other contact herbicides medium to coarse droplet size is the best, but I think most growers continue to use the fine droplet size nozzles.

Anyway, guidelines that name chemicals with water volumes etc would be helpful, along with which chemical are not affected or enhanced when spraying early in the morning when there is dew on the plants.

Tom's response:

We unfortunately don't have an answer for each possible combination of pesticides, so a bit of guessing and some generalizations are necessary. Our research has shown that the ideal droplet size depends on a number of factors such as mode of action, water volume, and target species. I'm writing this with the assumption that drift control is important and for that reason, Fine and Medium sprays are not acceptable.

In summary:

Grassy weeds sprayed with a Group 1 or 10 product typically work with a Medium to Coarse spray quality. Very Coarse and coarser may result in reduced control, especially at lower water volumes (< 8 US gpa). When sprayed with glyphosate, low water volumes (3 - 5 US gpa) are usually successful with Coarse to very Coarse sprays. This is a special case.

Broadleaf weeds sprayed with Group 2 and 4 products work well with Coarse to Very Coarse sprays at >7 US gpa. With Group 6 and 10, more water may be needed to achieve the right coverage.

Morning dew is very unlikely to reduce product performance unless it is extraordinarily heavy. We have tried spraying in dew several times and found no loss of performance. But we didn't test very many products, so we may yet be surprised.

More information is found in the attached document: Choosing the right application volume.pdf

Post-Emergent Rolling of Peas and Lentils

Peas and lentils may be rolled after emergence if necessary. The following table is research conducted by Lopetinsky and APG Zone 3, where early rolling was done immediately after seeding and late rolling was at the two- to three-node stage. Light rolling was a 42-inch roller without water ballast, while the heavy rolling was with water ballast.

Land Rolling Treatments	Yield as % of CHECK (not rolled) plots	
	1993 (average of 2 sites)	1994 (average of 4 sites)
Early/light rolling	99.8	94.2
Early/heavy rolling	103.2	94.5
Late/light rolling	101.2	102.5
Late/heavy rolling	96.5	94.9
Check/not rolled	100	100
Significance	Non-significant	Non-significant

Overall, recommendations for rolling pea fields are:

- roll pea fields as soon after seeding as possible and when the soil surface is dry
- when faced with with late rolling and late spraying, when pea growth is advanced, spray first and roll the field three to four days later – if the herbicide has a wide window for application, roll the pea field first, as rolling causes less stress on the plant than broadleaf herbicides
- extremely late rolling (after the fifth node stage) is not recommended as this may result in bruising of the pea leaves, stem breakage and increased disease levels.
- never roll pea fields in the morning – rolling wet pea leaves will spread disease

For lentils, rolling can be done up to the fifth node stage and no later.

- rolling after the fifth node stage can damage stems and branches and can seriously reduce yields.
- water ballast in the roller is not needed, since packing is not the goal.
- to avoid possible yield reductions and crop damage due to stress, leave at least a two-day break between rolling and herbicide applications.
- herbicide application is the recommended first operation if a choice must be made as the yield losses associate with weed competition are typically more severe than losses associated with a crop that is not rolled.
- when plants are damp from rain or dew – in these conditions, plant leaves adhere to the roller and tear which will allow for the spread of diseases.

Upcoming Tour Dates

July 6, 7 or 8 (Pick one day)

SARA Diagnostic Field School - Lethbridge

Featured topics: Energy Use in Tillage Systems (comparing pulses and canola), Inter-row Seeding, Bio-mass Production, Winter Pulses, Agronomy, Pests, Variety Demonstrations and more.

To register, contact Elizabeth (403) 345-6550 or sara-research@platinum.ca.

July 14 & 15, 2010

Integrated Crop Management Field School – Olds College

What's the diagnosis? - Perfect your skills in crop management and diagnostics with this field-based workshop. Come one or both days to join specialists from Olds College and industry to discuss the current issues you are facing. Contact Nancy at 1-800-661-6537 ext. 4677.

July 21, 2010

Battle River Research Group - Stettler tour at 9:30 am with the Castor tour at 1:30 pm. Contact the BRRG at 1-866-828-6774 for more details.

July 27 and 28, 2010

Seed & Soil Expo – Didsbury

This year's Expo has expanded to encompass over 130 acres, with seven half-acre pulse plots featuring green and yellow peas, as well as soybean, lentil and fababean plots, the new Cruiser Maxx Pulses® seed treatment, a new foliar treatment for mitigating yellowing from herbicide and a live swathing demonstration. For more information, or to register for the event, please call Pat at 403-888-2050 or inquire with your local Crop Production Services retail location.

July 27, 2010

Smoky Applied Research and Demonstration Association – MD of Greenview Tour

COST: \$20 Tour, Lunch and Refreshment Included

For more information and to pre-register for the tour, please call the SARDA office in Falher at 780-837-2900.

July 28, 2010

North Peace Applied Research Association Annual Field Tour - Manning

For more information or to pre-register call Nora Paulovich or Jana Ungarian at 780-836-3354.

August 4, 2010

Battle River Research Group - Viking tour at 9:30 am. Contact the BRRG at 1-866-828-6774 for more details.

August 5, 2010

Battle River Research Group – Killam tour at 9:30 am. Contact the BRRG at 1-866-828-6774 for more details.

Previous PAN Bulletins

View Previous PAN Bulletins at:

<http://www.pulse.ab.ca/ForProducers/Publications/PulseAgronomyNetwork/tabid/125/Default.aspx>

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