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July Spray Applications

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July Spray Applications

Abstract

Applicators using ground sprayers for herbicide may be using higher speeds to catch up with weeds and cover more acres in a narrow time window. If so, they should consider the travel speed they've used to calculate appropriate nozzle size. If field speed increases by 25% (e.g., going from 12 to 15 mi/h), spray pressure for a given nozzle must increase by 56% (e.g., from 40 psi to 63 psi) to maintain output. A better choice to reduce smaller droplets and minimize drift would be to increase nozzle size.

Keywords

Agronomy, Agricultural and Biosystems Engineering

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering

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ICM News

July Spray Applications

July 10, 2014

by Clarke McGrath, Extension Field Agronomist, and Mark Hanna, Extension Ag Engineer

Applicators using ground sprayers for herbicide may be using higher speeds to catch up with weeds and cover more acres in a narrow time window. If so, they should consider the travel speed they've used to calculate appropriate nozzle size. If field speed increases by 25% (e.g., going from 12 to 15 mi/h), spray pressure for a given nozzle must increase by 56% (e.g., from 40 psi to 63 psi) to maintain output. A better choice to reduce smaller droplets and minimize drift would be to increase nozzle size.

A common concern with mid-summer ground applications in soybeans is the potential impact of wheel tracks on soybean yields. Research suggests that an adequate soybean stand (more than 100,000 plants per acre) planted in late April through mid-May can compensate for wheel tracks made when a field is sprayed at R1. Yield loss can occur,

however, when wheel tracks are made at R1 or later in thin soybean stands (less than 100,000 plants per acre) or late planted soybeans. After the various hail storms, we have a lot of both thin stands and later planted beans unfortunately.

Regardless of stand, plants could not compensate for wheel tracks made at R3 (early pod development) or R5 (early seed development). The average yield loss per acre is based on sprayer boom width (distance between wheel track passes). In our trials yield losses averaged 2.5, 1.9, and 1.3% when sprayer boom widths measured 60, 90, and 120 foot, respectively. Multiple trips along the same wheel tracks did not increase yield loss over the first trip.

Comparison of ground vs. air applications in the Midwest is limited. An Iowa Soybean Association study on corn showed only a 0.2 bushel per acre difference between ground vs air. Both can potentially be very effective on insect and disease pests in corn and soybean fields but are dependent on operator/pilot skill and ensuring the right spray parameters for each type of application.

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Category:

Crop:
Soybean

Tags:

Authors:



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Prior to joining ISU spent nearly a decade as a retail agronomist/manager in Growmark system, earning 3 M.A.R.C. of Excellence Awards, 5 Annual Sales Program Awards, 6 Iowa Top Gun Awards and 3 Regional Top Gun Awards.

Raised on farms in Union County, Iowa and Dixon County, Nebraska

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H Hanna *Scientist II*

Dr. H. Mark Hanna is an Extension Agricultural Engineer with Iowa State University. Hanna's main focus is sustainable agricultural systems, including chemical application, energy consumption, tillage/planting and harvest. His research focus has been on developing ways for field equipment to

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