

INTEGRATED CROP MANAGEMENT

Effect of crop canopy on spray coverage

This season's weather has resulted in many fields having to be treated with what must be considered less-than-timely herbicide applications. This situation creates several problems for applicators, one of them being obtaining adequate coverage of the target. The developing crop canopy intercepts much of the spray, thereby decreasing coverage of the weeds and exposing the crop to higher-than-label rates. Spraying fields with large crops present (>10 inches in height) can, therefore, result in poor weed control, crop injury, or both.

When a spray boom is set up properly, it applies the desired rate of product uniformly across the width of the boom at a specific distance below the nozzles. Uniform application can only be achieved if the boom is set at the proper height for the target. Delays in applications may result in the crop canopy being significantly above the intended target--the weed canopy. Under these conditions, the crop not only interferes with distribution of the herbicide onto the weeds but also the crop may be exposed to excessive herbicide rates. The effect of the height differential between crop and target on the potential rate to which the crop is exposed is shown in the table. For this data set, it is assumed that the target (weed canopy) is 4 inches above the soil surface and that the boom is set up to be operated 28 inches above the target. Crop rows that are directly beneath a nozzle receive the maximum dose, whereas rows positioned to the side of nozzles would be treated with somewhat less herbicide than listed in the table. In this example, 12-inch corn treated with 0.67 oz/acre of Accent could potentially receive a dose of 0.94 oz Accent/acre, whereas 16-inch corn could be treated with up to 1.17 oz/acre.

The potential for spray coverage problems increases as height differential between the target and crop canopy increases. The only real solution to the problem is to use drop nozzles where the nozzles are placed directly over the row middle. Raising the boom height will do little to alleviate problems with coverage but will increase the potential for herbicide drift into adjacent fields.

Influence of crop height on interception of spray solution.

Crop height (in inches)	% of desired application rate intercepted by crop canopy

4	100
8	117
12	140
16	175

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