

BOOM APPLICATION OF GLYPHOSATE (ROUND-UP)

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In order to fully assess the damage to spruce transplants of the herbicide glyphosate (Round-up), a 4.3 meter boom application was made to transplanted white and Colorado spruce (*Picea glauca* and *P. pungens glauca*). The crop was unharmed, however, with heavy weed seed infestation; weed reoccurrence was heavy.

Methods

On August 15, 1977, glyphosate was applied at the rate of 1.0 kilogram per hectare (kg/ha) to a plot of *Picea pungens glauca* (Colorado spruce) and to a plot of *P. glauca* (white spruce). The Colorado spruce had been transplanted in August 1977, and the white spruce in June 1976.

The nozzle used was a stainless steel Tee Jet #6504, with 138 kPa at 5 kilometers per hour and the chemical was applied in 562 liters per hectare.

Weed control and crop tolerance were observed throughout the 1978 growing season.

Weed Control

In the field containing Colorado spruce transplants, very few weeds existed in either the treated or nontreated plots. Dandelion (*Taraxacum officinale*), wild buckwheat (*Polygonum convolvulus*), lamb's quarter (*Chenopodium album*), and common groundsel (*Senecio vulgaris*) grew sparsely throughout both treated and nontreated areas.

In the white spruce planting, a heavy infestation of weeds was found throughout. The weeds were less dense in the treated area in the spring; but after handweeding, both treated and nontreated areas had a heavy reoccurrence of dandelion, stinkweed (*Thlaspi arvense*), wild mustard (*Sinapis arvensis*), green smartweed (*Polygonum scabrum*), sow thistle (*Sonchus arvensis*), hemp nettle (*Galeopsis tetrahit*), broad-leaved plantain (*Plantago major*), Canada thistle (*Cirsium arvense*), lamb's quarter, pigweed (*Amaranthus retroflexus*), and grasses.

Crop Tolerance

There was no growth or mortality difference in the treated and nontreated plots for either crop species.

Conclusion

The observations suggest that a single application of glyphosate to transplanted white spruce and Colorado spruce at the rate of 1.0 kg/ha will not harm the crop, but that reoccurrence of weeds will occur during the next growing season. This suggests that more than one application must be made. Weed control of existing mature weeds after initial spraying was excellent in both species. Reoccurrence was due to large seed germination in the white spruce transplant field.