

EVALUATION OF FOLIAR-APPLIED NUTRIENTS TO SEED CARROTS, 2000

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Abstract

Foliar nutrients were applied to seed carrots near Culver, Oregon at the beginning of seed set. Treatments including N, P, K alone and in combination with micronutrients were compared to untreated plots. The remainder of the field was divided into commercial-sized plots comparing the combination treatment with the untreated. There were no differences between treatments in the replicated plots. The commercial-sized plots suggested a potential reduction in yield from foliar-applied nutrients at the beginning of seed set.

Introduction

There is grower and industry interest in determining the effect of foliar-applied nutrient to seed carrots in central Oregon. The objective of this project was to compare the effect on seed yield of foliar nutrients applied just prior to seed set. Treatments included macronutrients (N, P, K), a combination of macro and micronutrients (B, Cu, Fe, Mn, Mo, Zn), and untreated plots.

Methods and Materials

Plots 2 rows x 10 ft were replicated four times in a randomized complete block design in a commercial seed carrot field near Culver, Oregon. The macronutrient treatment was a 3-18-18 formulation applied at 1.67 gal/acre. The combination macro and micronutrient treatment was a combination of 6-21-2 applied at 1 gal/acre and 20-20-20 with 0.02% B, 0.05% Cu, 0.10% Fe, 0.05% Mn, 0.0005% Mo and 0.05% Zn applied at 5 lb/acre. Because the two treatments had different formulations, the amounts of phosphorus was equalized at 8.8 lb/acre for both treatments while the macronutrient formulation had 1.5 lb/acre N and 8.8 lb/acre K compared to the combination treatment with 3.2 lb/acre N and 1.7 lb/acre K. Treatments were applied June 27 when bees were introduced into the field to at the beginning pollination and seed set. A CO₂-pressurized, hand-held boom sprayer was used at 40 psi and with 20 gal/acre water.

The outside row of each plot was harvested September 21 by digging the plants, placing them in large canvas bags, and hanging the bags in an open-sided shed at the COARC to complete drying. Heads were then removed from the plants by hand and the seed cleaned using standard procedures at the National Forage Seed Production Research Center seed-conditioning lab in Corvallis, Oregon. In addition to seed yield, percent germination and weight per thousand seeds was determined. The grower cooperator applied the combination treatment of both macro and micronutrients to one-third (16 acres) of the field, leaving two thirds (34 acres) of the field untreated. The two large plots were combined separately and the seed cleaned separately to determine yield/acre on a commercial-sized scale.

Results and Discussion

There were no differences between plots treated with macronutrients, a combination of macro and micronutrients, and untreated plots (Table 1). There were no differences in weight per 1,000 seeds or percent germination between treatments. Unreplicated commercial-sized plots suggest a potential reduction in yield from foliar-applied nutrients at the beginning of seed set.

Table 1. Effect of foliar-applied nutrients to seed carrots near Culver, Oregon, 2000.

Treatments	Replicated small plots			Field plots
	Yield (lb/acre)	1,000 Seed Wt (g)	Percent germination	Yield (lb/a)
Macronutrients	330	1.81	93	
' Macro + Micronutrients	323	1.87	91	395
Untreated	294	1.91	95	515
	NS ¹	NS	NS	

¹ Mean separation with Student-Newman-Keuls P 0.05.