

METALOSATE[®] FIELD TRIALS ON BLUEBERRIES IN OREGON

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Introduction

This field trial took place in the area of Cornelius, Oregon, USA. According to the Oregon Agricultural Statistics Service reports for 2001, there are 2,800 harvested acres of blueberries in Oregon and 2000 acres in Washington. They represent an important part of agriculture in these states. At Albion Advanced Nutrition, we have not done very much research to date on blueberries so this project was instigated to serve as a foundation for future growth into the blueberry market. Bruce Wendland with Western Farm Service in Cornelius, Oregon served as the main contact and coordinated the project with one of his growers.

Materials and Methods

In commercial blueberry production in the Pacific Northwest the current cultural practices indicate that there are standard times when applications of chemicals and fertilizers are made. They are essentially the following: first fungicide (April), second fungicide (May), third fungicide (June), fourth fungicide (July), post bloom (July), and an insecticide application in August. In many instances a post harvest zinc application is also made.

We put together a program that could be compared to the one the grower was currently utilizing. We wanted to use the tonnage harvested, leaf tissue analysis, and berry analysis to determine which program was the most beneficial and profitable for the grower.

Below are two tables listing the timing, rates and products, and mineral analysis of products applied in the project.

Table 1 Metalosate Treatments		
Timing	Product Applied	Mineral Content
May	32 fl oz/ac (2.3 L/ha) Metalosate® Zinc	6.8% Zinc
	32 fl oz/ac (2.3 L/ha) Metalosate® Calcium	6.0% Calcium
June	48 fl oz/ac (3.5 L/ha) Metalosate® Magnesium	2.1% Magnesium
	32 fl oz/ac (2.3 L/ha) Metalosate® Calcium	6.0% Calcium
	4 fl oz/ac (0.3 L/ha) cytokinin material	
July	16 fl oz/ac (1.2 L/ha) Metalosate® Boron	5.0% Boron
	32 fl oz/ac (2.3 L/ha) Metalosate® Calcium	6.0% Calcium

Table 2 Grower's Program		
Timing	Product Applied	Mineral Content
May	64 fl oz/ac (4.7 L/ha) Ele-max® PhosCal-Zin FL	15.0% P ₂ O ₅ 13.0% Calcium 7.4% Zinc
June	48 fl oz (3.5 L/ha) Ele-max® PhosCal-Zin FL	15.0% P ₂ O ₅ 13.0% Calcium 7.4% Zinc
	48 fl oz (3.5 L/ha) Ele-max® Calcium FL	23.7% Calcium
July	64 fl oz/ac (4.7 L/ha) Ele-max® Magnesium FL	20.0% Magnesium
	48 fl oz (3.5 L/ha) Ele-max® Calcium FL	23.7% Calcium

In the Metalosate treatment, the May application was based on general guidelines for blueberry production. Following this application tissue samples were collected and the June application was made based on the T.E.A.M.® recommendations. The same process was followed for the July application.

In the grower's standard program no adjustments were made based on tissue analyses. The program was written prior to the growing season based on past experience and applications were made based on the written program.

Results

We wanted to use three different measures to determine the efficacy of these two programs. The first was to look at the tissue analysis to make a determination as to the bioavailability of the products applied. A review of the tissue analysis reports indicated that there were no significant differences in the measured levels of the minerals applied. The second was to look at the total tonnage harvested from each treatment. When it came down to harvest time it proved an impossible task to keep track of everything separately due to the size of the harvest crew, and the time frame in which the harvest needed to be completed. Unfortunately, we were able to obtain no data from this measure. The third and final measure we wanted to make was to perform a mineral analysis on samples of the actual blueberries from each treatment. This we were able to complete and the results are shown below in Table 3. Two samples were analyzed from each treatment. I have averaged the results from the two samples to come up with one set of numbers for each treatment.

Treatment	Total N %	S %	P %	K %	Ca %	Mg %	B ppm	Zn ppm	Mn ppm	Cu ppm	Fe ppm
Albion Metalosate®	0.82	0.08	0.09	0.67	0.13	0.06	13	20	17	7	51
Grower's Standard	0.84	0.07	0.09	0.57	0.09	0.05	9	11	13	3	29
No Foliar Applied	0.72	0.06	0.08	0.58	0.09	0.05	7	8	15	3	23

Conclusion

The results from this field trial are very promising. As can be seen in the information contained in Table 3, the Metalosate treated blueberries contained higher levels of the minerals applied, and in most cases of minerals that were not applied as well. Unfortunately, due to circumstances beyond our control we were unable to collect harvest data; however, I am confident that had this information been obtained we would have been able to see an increase in the tonnage harvested on the Metalosate treated areas when compared to the other areas. The results from the leaf tissue analyses are not unexpected given that there was a period of 3-4 weeks that had passed from the time the application was made to the time the sample was taken. This is very typical of the Metalosate products. Due to their extremely high bioavailability they are utilized by the plant very quickly. Typically, if the sample is not taken within 5-7 days it is difficult to see an increase in the leaf tissue levels of the minerals applied.

The Metalosate applications in this project proved to be the most effective products at increasing the mineral nutrition status within the blueberries. When comparing at the actual amount of mineral applied on a per acre basis the Metalosate products were far superior to the grower's standard program. With all of these things taken into consideration I am confident that this grower will want to make the Metalosate program his standard program.

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