

# Sugar Beet Residue: Alternate Source of Calcium and Minor Nutrients

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A study was conducted to determine the feasibility of sugar beet residue as an alternate source of calcium for roses. 'Forever Yours' plants were fed with the recommended nutrient concentrations minus calcium. The calcium was supplied as a dry application, with half of the plants receiving sugar beet residue and the other half gypsum (both approximately 65 lbs. per 100 sq. ft., 6-inch depth). A tissue analysis was taken at the beginning and conclusion of the study.

During the three-month period of the study, both the sugar beet and gypsum treatments maintained calcium at 1%. Higher tissue levels of nearly all ions

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Table 1. Analysis of sugar beet residue.

Elements	Concentration
Calcium	2200 ppm
Magnesium	460 ppm
Phosphorus	180 ppm
Potassium	340 ppm
Sodium	1.4 ppm
Sulfur	200+ ppm
Iron	21 ppm
Manganese	1.8 ppm
Zinc	2.5 ppm
Copper	1.3 ppm
Boron	1.4 ppm

Table 2. Tissue analysis of rose leaves before and 3 months after fertilization with sugar beet residue and gypsum.

Element:	Before application	Sugar beet	Gypsum
Phosphorus (P) %	.24	.33	.29
Potassium (K) %	2.5	3.0	2.8
Calcium (Ca) %	.56	1.0	1.0
Magnesium (Mg) %	.28	.31	.28
Sodium (Na) %	.08	.12	.11
Sulfur (SO <sub>4</sub> ) %	.055	.17	.14
Iron (Fe) ppm	110	320	78
Manganese (Mn) ppm	73	170	36
Zinc (Zn) ppm	59	210	58
Copper (Cu) ppm	15	10	30
Boron (B) ppm	30	83	78

were noted in the sugar beet residue treatment, especially iron, which tripled in concentration. There was no difference in yield.

It appears that sugar beet residue is a good source for calcium and many of the minor nutrients. The ions are readily available to the plants and would probably continue to be available even in high pH soils because the residue contains enough sulfur to have a buffering effect on pH.

If you decide to use this material, there is one thing to watch for — contamination by herbicides. It is strongly recommended to know your source and to test each load with an indicator plant before applying the residue to beds.