

Opena, Geraldine B., Liquan Zhang and Gregory A. Porter. Soil Amendment and Crop Rotation Effects on Growth and Yield of Superior Potatoes.

An experiment was conducted to determine if the use of soil amendments and rotation crops can improve the soil physical properties so that the crop can tolerate periods of drought or excess rainfall. The potato cultivar Superior was grown in plots without or with soil amendments consisting of cull potato compost (22.4 Mg/ha) and manure (44.8 Mg/ha). The rotation crops were oats and green manure (a mixture of oats, peas, vetch and clover) and were in factorial combination with the soil amendment treatments.

Early-season crop growth was significantly enhanced in the amended plots. Plants emerged significantly faster and leaf area index was consistently higher. The plants were also significantly taller in the amended treatments. Yields were significantly increased by the soil amendments. Total yields were 23% higher and US#1 yields 15% higher in the amended treatments compared to the unamended treatments. The amended treatment significantly reduced specific gravity and increased tuber size. Rotation crop did not have any effect on the above mentioned characters; however, late-season foliage vigor was enhanced following the green manure crop.

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659

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