

Dwight and Ed Macy Location

The experiment was established on a Metolius sandy loam soil. The pH was 5.7 and the phosphate and potash levels were adequate. The lime and potassium treatments were incorporated in the soil on May 3 and the field planted on May 8. In addition to the lime and potassium treatments applied, the field received 1000# 16-20-0 per acre, one half broadcast on May 3 and one half banded by the planter on May 8. The stand in the trial area was erratic and something less than desirable.

The chemical analysis of a plant sample taken July 8, 1974, during the pre-bloom (tubers 1/2 - 3/4") stage is given in Table 47 and shows satisfactory levels of all elements tested. A plant sample taken adjoining the trial area on August 20 indicates a very high level of K in the petiole for that stage of growth that is not reflected in the leaf. The Mn levels in the leaf and petiole have risen rapidly from the levels shown in July and probably indicate manganese toxicity. The yields of the several lime and potassium treatments (Table 48) were not significantly different. Being affected by the differences in stand, yields between replications of the same treatment were quite variable.

Table 47. The effect of lime and potassium fertilizer treatments on the chemical analysis of the Russet Burbank potato petiole, Dwight Macy farm, Culver, Oregon, 1974.

Treatment	Chemical analysis - petioles ⁽¹⁾					
	P %	K %	Ca %	Mg %	Zn ppm	Mn ppm
L2 K0	0.34	11.8	0.86	0.64	30	63
L2 K2(C1)	0.33	11.5	0.82	0.66	30	58
L2 K2(SO ₄)	0.34	11.6	0.74	0.56	34	52
L0 K0	0.29	11.6	0.74	0.65	36	88
L0 K1(C1)	0.33	12.1	0.70	0.59	39	106
L0 K2(C1)	0.32	11.9	0.72	0.64	34	92
L0 K1(SO ₄)	0.32	11.7	0.76	0.64	34	79
L0 K2(SO ₄)	0.32	11.8	0.71	0.62	35	78

(1) First sample date - pre-bloom, July 8, 1974.

Table 48. The effect of lime and potassium fertilizer treatments on the yield, size and specific gravity of Russet Burbank potatoes, Dwight Macy farm, Culver, Oregon, 1974.

Treatment	Percentage of tubers in size class (No. 1)				% No.1	Total yield tons/a	Specific gravity
	<4oz	4-6oz	6-10oz	10oz+			
L2 K0	12.2	14.5	30.2	35.4	80.1	20.11	1.094
L2 K2(C1)	11.9	13.9	31.8	34.6	80.3	23.21	1.091
L2 K2(S04)	8.1	13.0	33.5	41.9	88.4	20.79	1.092
L0 K1	11.1	17.9	37.2	32.5	87.6	19.44	1.095
L0 K1(C1)	14.5	21.2	35.9	27.6	84.7	19.81	1.094
L0 K2(C1)	11.1	16.8	28.8	38.5	84.1	20.53	1.088
L0 K1(S04)	11.0	17.2	33.3	27.9	78.4	25.42	1.096
L0 K2(S04)	15.5	20.6	35.2	26.3	82.1	18.65	1.094

Treatments applied and disced in May 3, 1974 (N. S.).

L2 = 2 tons lime

K1 = 100#/a K₂O

K2 = 200#/a K₂O

(C1) = Muriate of potash

(S04) = Sulfate of potash

In addition to the above treatments, the field received 500# 16-20-0 prior to planting (05-03-74) and 500# 16-20-0 banded at planting time May 8, 1974.