https://doi.org/10.29321/MAJ.10.A02967

Madras agric. J. **66** (6) : 376 – 378, June, 1979.

Schoenite as a Potassic Fertilizer for Potato

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The trails conducted at the Agricultural Research Station, Nanjanad and Project Farm, Kakathope in Tamil Nadu indicated that Schoenite containing 22 per cent K_2O and 16 per cent MgO is a good potassic carrier. In the acid soils of Nilgiris, this fertilizer can be substituted for potassium sulphate in Nanjanad mixture, a fertilizer mixture for potato without any adverse effect either on the yield or the soil characteristics.

Schoenite is a by-product from indigenous marine salt industry and it contains about 22 to 24 per cent of K_2O and 16 per cent of MgO. Observational trails for four seasons were laid out to compare the efficacy of schoenite as a substitute for potassium sulphate in the Nanjanad mixture on equal K_2O basis. Its influence on the potato tuber yield and the availability of important plant nutrients is studied. The results are discussed in this paper.

MATERIAL AND METHODS

The trials were laid out at the Agricultural Research Station, Nanjanad with potato (Great Scot variety) as the test crop during the winter seasons of 1972 and 1973 and autumn of 1972 and 1973. The trial was also laid out at the State Seed Farm, Kakathope during winter season, 1972. Nanjanad mixture is the common fertilizer for potato supplying 123 kg/ha K_2O. The first treatment, therefore, contained K_2O at this rate as potassium sulphate. In the second treatment schoenite was applied as the potassic source on equal nutrient content basis. The plot size was 11.88 sq. meters.

Yield data were recorded and statiscally analysed. Soil samples were collected and analysed for the plant nutrients like available phosphorus and pottassium, exchangeable calcium and magnesium, pH and organic carbon.

RESULTS AND DISCUSSION

The yield data for all the seasons are summarised in Table I.

The difference in yield due to the application of schoenite as the source of potassium is statistically not significant. This indicated that schoenite can be used in place of potassium sulphate. Similar results with groundnut were reported by Natarajan *et al.* (1973). They had not observed any

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TABLE I Yield particulars

Season	Treatment No. 1 yield in kg/plot	Treatment No. 2 yield in kg/plot
Winter 1972 at Agricultural Research Station, Nanjanad	17.90	17.60
Winter 1972 at State Seed Farm, Kakathope	43.65	46.50
Autumn 1972 at Agricultural Research Station, Nanjanad	18.50	22.10
Winter 1973 at Agricultural Research Station, Nanjanad	12.40	12.90
Autumn 1973 at Agricultural Research Station, Nanjanad	18.90	12.00

$SD^2 = 0.11$ N. S.

TABLE II Chemical Characteristics of Soils

Characters		Winter 1973	Autumn 1972	Winter 1973	Autumn 1973
pH	1	5.2	4.3	4.1	4.6
	2	5.5	4.7	4.7	4.7
Exchangeable calcium ppm	1	14.75	10.75	14.75	10.75
	2	16.25	15.50	15.50	11.75
Exchangeable calcium ppm	1	1.13	0.78	0.73	1.25
	2	1.25	1.08	0.83	1.50
Organic carbon per cent	1	0.58	2.52	2.94	1.70
	2	2.10	2.36	3.10	2.02
Available P kg/ha	1	45.92	36.96	16.80	100.80
	2	16.80	35.84	28.00	112.00
Available K_2O kg/ha	1	56.00	39.20	48.16	140.00
	2	61.60	45.92	36.96	151.20

1 : Schoenite treated plot
2 : K_2SO_4 treated plot

adverse changes in the soil characteristics either.

There was no marked difference in the chemical characteristics of the soils by the use of schoenite (Table II) Further the soils of the district are acidic in nature and is subjected to heavy rains during the monsoons. This resulted in magnesium deficient areas (Mathan *et al.*, 1973). Schoenite, therefore can be advantageously applied to potato especially where magnesium deficiency is expected.

Schoenite is available locally. When the price is comparable, on equal nutrient basis with potassium sulphate, it can be used as a source of potassic fertilizer in the place of potassium sulphate for potato growing areas in the Nilgiris, especially where magnesium deficiencies are noted.

Sincere thanks are due to the Project Management of the Indo-German Nilgiris Development Project, Ootacamund, the Department of Agriculture, Tamil Nadu and the Superintendent, Agricultural Research Station, Nanjanad and State Seed Farm, Kakathope for the facilities offered in the conduct of the study.

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