LONG TERM EXPT. IMPROVEMENT OF SOIL CONDITIONS NAS 200 ML 72

PHASE I TREATMENT SEQUENCE 1st YEAR

CROP Sugar Beet

METHOD

All main plots were soil sampled on 20 September 1971 at 0-6 and 6-12 in. depth for routine analysis, particle size distribution and plastic and liquid limits.

On 22 September 20-25 ton per acre FYM was applied with an average nitrogen content of 0.43% f.wt. 50-55 ton per acre of Sugar Beet Sludge Lime (SBL) was applied on 22 September containing 0.48% P and 0.05% K of dry matter, with a total neutralising value of 46.1.

3 cwt per acre of agricultural salt was given on 28 February 1972. 120 units N, 80 $P_2 O_5$ and 150 $K_2 O$ was applied on 4 April to all but the FYM treatments which received 90 units N only as the FYM was calculated to supply 30 units N, 80 $P_2 O_5$ and 150 $K_2 O$.

Sharpe's Klein Polybeet was drilled on 19 April at 6 in. spacing and harvested on 6 October to allow the timely drilling of winter wheat.

RESULTS

Treatment	Plant Stations '000/acre	Root Yield ton/ acre	Sugar %	Sugar Yield cwt/acre
A1) Control	36.6	17.15	18.5	63.6
A2)	37.4	17.53	18.1	64.2
A FYM	39.9	17.55	18.2	64.0
A SBL	39.8	17.95	17.7	63.6
*A 1 yr ley	38.2	17.59	18.4	64.7

* Treatment not applied until 1974 equivalent to control in 1972

1. Sugar yield was not influenced by treatment.

2. A large dressing of sugar beet sludge lime marginally increased root yield but also slightly reduced the sugar percentage.

3. During mid and late summer plants growing on the sugar beet sludge lime plots particularly and to a lesser extent after FYM had larger and greener leaves.

CROP 3 yr Ley. Perennial Ryegrass.

METHOD

A 1:1 mixture of Barlena and S101 perennial ryegrass was sown on 7 October 1971 with 3 cwt per acre of a 13:13:20 compound fertiliser.

On 21 March 1972 100 units N, 30 P_2O_5 and 60 K_2O were applied for the first cut. The same rate of fertiliser was given for each of the two subsequent cuts.

RESULTS

Date of Cut	Yield Dry Matter cwt/acre	*'D' value	Crude Protein %
1st cut 19 June	53.0	59.5	10.9
2nd cut 16 August	16.7	67.0	17.7
3rd cut 11 October	17.6	61.8	17.5
Total	87.3		

* Estimated from MAD Fibre

1. The 1st cut produced a large yield of poor quality. The low digestibility was predictable from the late date of cutting but the crude protein was surprisingly low.

2. The total yield of dry matter from the three cuts was rather low perhaps partly as a result of moisture deficit but also due to difficulties with harvesting machinery which led to delays in cutting and hence the application of further fertiliser.