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61/R/B/7 Concentrated Fertiliser Rotation

Rothamsted Research

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61/B/7.1

CONCENTRATED FERTILISER ROTATION

Concentrated compound fertiliser and forms of N - West Barnfield I
1961, the second year.

Rotation: Kale, ryegrass, barley.

Design (each crop): 2 randomised blocks of 14 plots each.

Area of each plot (acres): 0.0174. Area harvested: Kale -
0.0084, ryegrass - 0.0061, barley - 0.0116.

Treatments (per acre): No fertiliser (O)
 P_2O_5 and K_2O each at 0.3 cwt to barley and each at 1.0 cwt to
 kale and ryegrass, as triple superphosphate and potassium
 bicarbonate. (B)
 Compound fertiliser, 20% N, 10% P_2O_5 , 10% K_2O at 0.3(1),
 0.6(2) cwt N to barley and 1.0(1), 2.0(2) to kale and
 ryegrass. (F)
 Sulphate of ammonia, granular superphosphate and muriate of
 potash at rates equivalent to treatments F(1) and (2). (P)
 PK as treatment B plus
 Sulphate of ammonia (S)
 Calcium nitrate (C)
 Urea (U)
 Ammonium nitrate (A)
 each at rates 1 and 2 of N.

Basal dressing: None.

Cultivations, etc.: Ploughed: Jan 11, 1961. Fertilisers broadcast for
 barley, barley drilled at $2\frac{1}{2}$ bushels per acre: Mar 13. Fertilisers
 broadcast for ryegrass, ryegrass sown at 30 lb per acre: Mar 17.
 Fertilisers applied for kale: Apr 11. Kale drilled at 3 lb per
 acre: Apr 24. Barley and ryegrass sprayed with CMPP at 6 pints
 in 40 gallons per acre: May 13. Grass cut: July 20. Barley
 combine harvested: Aug 16. Grass cut second time: Sept 26.
 Kale harvested: Nov 6 and 16. Varieties: Kale - Thousand head
 (Canson); ryegrass - S22; barley - Proctor.

Erratum to "Results of the Field Experiments" 1960 page 60/B/8.1(q.v.):
 Treatment B should read " P_2O_5 and K_2O each at 0.3 cwt to barley and each
 at 1.0 cwt to kale and ryegrass" and not as shown.

Standard errors per plot.

Kale, fresh weight: 1.343 tons per acre or 6.6% (13 d.f.)

Ryegrass dry matter:

1st cut: 3.10 cwt per acre or 4.5% (13 d.f.)

2nd cut: 1.21 cwt per acre or 13.2% (13 d.f.)

Total of 2 cuts: 3.43 cwt per acre or 11.2% (13 d.f.)

Barley, grain (at 85% dry matter): 1.66 cwt per acre or 5.9% (13 d.f.)

61/B/7.2

Summary of Results

Fertiliser	Kale fresh weight: tons per acre	Ryegrass dry matter: cwt per acre			Barley (at 85% dry matter): cwt per acre	
		1st cut	2nd cut	Total of 2 cuts	Grain	Straw
	(± 0.949)	(± 2.19)	(± 0.85)	(± 2.43)	(± 1.18)	
O	10.91	8.2	5.5	13.7	9.3	4.5
B	13.05	7.4	5.0	12.3	12.6	5.2
F ₁	19.48	21.5	9.5	31.0	27.1	16.0
F ₂	23.72	26.4	11.4	37.7	37.0	27.9
P ₁	20.14	19.9	8.8	28.6	25.5	15.1
P ₂	23.91	24.2	10.4	34.6	37.3	28.4
S ₁	20.96	20.6	7.3	27.9	24.1	14.0
S ₂	21.97	26.4	13.2	39.5	34.3	24.7
C ₁	21.39	24.3	8.6	32.9	27.0	16.3
C ₂	23.64	26.2	10.4	36.5	36.4	22.8
U ₁	19.46	20.2	7.9	28.1	26.4	16.3
U ₂	22.60	23.5	10.8	34.3	35.0	26.4
A ₁	19.42	25.2	9.5	34.6	27.1	18.4
A ₂	22.84	24.8	10.5	35.3	34.2	21.8
Mean	20.25	21.3	9.2	30.5	28.1	18.4
Mean dry matter % as harvested:		25.0	22.2	23.6	80.8	78.1

Treatments

O = No fertiliser

B = P₂O₅ and K₂O each at 0.3 cwt to barley and each at 1.0 to kale and ryegrass, as triple superphosphate and potassium bicarbonate.F = Compound fertiliser, 20% N, 10% P₂O₅, 10% K₂O at 0.3(1), 0.6(2) cwt N to barley and 1.0(1), 2.0(2) to kale and ryegrass.

P = Sulphate of ammonia, granular superphosphate and muriate of potash at rates equivalent to treatments F (1) and (2).

S = Sulphate of ammonia Plus PK as treatment B

C = Calcium nitrate " " " " "

U = Urea " " " " "

A = Ammonium nitrate " " " " "