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67/R/RW801/DA/8 and 67/W/WW301/DA/8 Spring Wheat - Anhydrous Ammonia

Rothamsted Research

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67/Da/8.1

SPRING WHEAT

(RW801 and WW301)

Anhydrous ammonia as a fertiliser - Rothamsted (R), Great Knott I and Woburn (W) Great Hill S.W. 1967.

Design: 4 randomised blocks of 8 plots.

Area of each plot: 0.0321. Area harvested: 0.0213.

Treatments: All combinations of:-

1. Forms of N: Broadcast 'Nitro-Chalk' (B), injected anhydrous ammonia (I).
2. Levels of N: 0.5 (N1), 1.0 (N2), 1.5 (N3) cwt N together with no nitrogen - without (NO), with (NOI), the injector running idle through the soil.

Basal applications:

Great Knott I (R): 40 cwt ground chalk, 250 lb (0:20:20) combine drilled. Weedkiller: Mecoprop/2,4-D (Methoxone Extra at 6 pints in 30 gals).

Great Hill S.W. (W): 40 cwt ground chalk, 280 lb (0:20:20) combine drilled. Weedkiller: Ioxynil/mecoprop (Actril C at 5 pints in 35 gals).

Cultivations, etc.:

Great Knott I (R): Ground chalk applied: Nov 11, 1966. Ploughed: Sept 28. Anhydrous ammonia injected: Mar 8, 1967. 'Nitro-Chalk' applied, seed drilled at 185 lb: Mar 14. Weedkiller applied: May 11. Combine harvested: Aug 24. Variety: Kloka. Previous crops: Potatoes 1965, winter wheat 1966.

Great Hill S.W. (W): Ground chalk applied: Nov 3, 1966. Deep-tine cultivated: Feb 3, 1967. Anhydrous ammonia injected: Mar 8. 'Nitro-Chalk' applied: Mar 13. Seed drilled at 170 lb: Mar 14. Weedkiller applied: May 3. Combine harvested: Aug 22. Variety: Kloka. Previous crops: Barley 1965, potatoes 1966.

NOTES: (1) Green crop samples were taken on 28th June, for yield and N content.

(2) Owing to a failure of the injector little ammonia was injected into plot WW326 - IN2. An estimated value was used in the analysis.

Standard errors per plot (estimated from plots receiving N). Grain:

Great Knott I (R): 2.28 or 6.9% (15 d.f.)

Great Hill S.W.(W): 4.51 or 13.6% (14 d.f.)*

* 1 estimated value.

67/Da/8.2

SUMMARY OF RESULTS

GREAT KNOTT I (R)

GRAIN

	N1	N2	N3	Mean
		(±1.14)		(±0.66)
B	28.5	35.4	36.3	33.4
I	26.8	32.5	38.0	32.4
Mean (±0.81)	27.7	34.0	37.1	32.9

	NO	NOI	Mean
	18.8	20.1	19.4
	(±1.14)		

General mean: 29.6

Mean D.M. %: 80.9

67/Da./8.3

GREAT HILL S.W. (W)

GRAIN

	N1	N2	N3	Mean
		(±2.25)		(±1.30)
B	30.7	35.6	42.5	36.3
I	20.1	33.3	36.4	29.9
Mean (±1.59)	25.4	34.5	39.5	33.1

	NO	NOI	Mean
	15.8	16.6	16.2
	(±2.25)		

General mean: 28.9

Mean D.M. %: 84.3