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76/R/MA/1 Nitrification Inhibitors - Maize

Rothamsted Research

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76/R/MA/1

MAIZE

NITRIFICATION INHIBITORS

Object: To study the effects of adding nitrification inhibitors to aqueous urea/ammonium nitrate on the yield and nitrogen uptake of maize grown for forage - Hoosfield.

Sponsors: J. Ashworth, A.J. Barnard.

Design: 3 randomised blocks of 10 plots split systematically into 2.

Whole plot dimensions: 4.57 x 13.4.

Treatments: All combinations of:-

Whole plots

1. N TREAT Nitrogen forms, rates and nitrification inhibitors:

Aqueous urea/ammonium nitrate injected to seedbed (26 Apr) at 120 kg N:-

AQ3 -	Alone
AQ3 ATC1	With ammonium trithiocarbonate at 10 kg
AQ3 ATC2	With ammonium trithiocarbonate at 25 kg
AQ3 NIT1	With nitrapyrin ('N-Serve') at 1.25 kg
AQ3 NIT2	With nitrapyrin at 2.5 kg

'Nitro-chalk' applied to seedbed (27 Apr) (kg N):-

NC1	40
NC2	80
NC3	120
NC4	160

'Nitro-Chalk' dressing divided (kg N):-

NC1+1+1 40 to seedbed (27 Apr), 40 in July (13 July), 40 at tasselling (6 Aug)

Sub plots

2. POPULATN Plant population:

100000	100,000
150000	150,000

Basal applications: Manures: (0:20:20) at 450 kg. Weedkiller: Atrazine at 1.7 kg in 220 l, harrowed in. Insecticide: Dimethoate at 0.07 kg in 450 l. Irrigation: 25 mm.

Seed: Caldera 535.