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A NOTE ON THE PROTEIN CONTENT OF GRAIN AS AFFECTED BY THE APPLICATION OF UREA AND NEAM COATED UREA TO RICE VARIETY - TRIVENI

It has been reported that application of nitrogen at heading stage results in increased protein content of rice. (Taira *et al.*, 1970). Since a good percentage of basal applied nitrogen is lost by various ways, repeated application of high doses of nitrogen is required for this purpose. This difficulty can be solved if basal applied nitrogen is made available at all stages of crop growth. The use of nitrification retarder like neem cake appears to be a solution to the problem of reducing the losses of nitrogen and thereby extending the period of availability of nitrogen even up to the later stages of crop growth. Hence to study this property of neem cake, an experiment was conducted at the College of Agriculture, Vellayani, Kerala.

The experiment was laid out during the Virippu season of 1973 in a sandy clay loam soil containing 0.078% total nitrogen, 0.0025% available phosphorus and 0.0027% available potash with a pH of 5.4. The treatments consisted of 4 levels of nitrogen (0, 40, 80 and 120 kg N/ha) and five methods of application (1) Complete basal application of urea (2) Complete basal application of neem coated urea (3)75% basal urea + 25% urea as top dressing (4) 75% basal urea + 25% neem coated urea as top dressing (5) 75% basal neem coated urea + 25% neem coated urea as top dressing For coating urea neem cake was mixed with urea at the rate of 20% of the weight of the urea.

The data on the protein content of grain are given in Table 1. It is seen that nitrogen increased the protein content of grain. Maximum protein content of grain was noticed by the application of nitrogen at the rate of 120 kg/ha which was found to be superior to all other levels. The control plot registered the lowest protein content. Increase in protein content of grain with increase in nitrogen supply has been reported by Pillai (1969) and Meera Sahib (1972).

The protein content of grain was significantly influenced by the methods of application. Complete basal application of urea registered the least percentage of protein. All other methods were on par. Higher protein content consequent to higher nitrogen supply is attributed to the continued absorption of nitrogen in the later stages of plant growth. Tanaka and Navasero (1964) classified nitrogen in the panicle into two catagories viz. (1) Nitrogen absorbed before flowering and (2) nitrogen absorbed after flowering. By providing the plant with a continued supply of

Table 1

Effect of nitrogen levels and methods of application on the protein content of the grain

Treatments	Protein per cent
Levels of nitrogen :	
0 kg. N/ha	6.27
40 ..	6.70
80 ..	7.22
120 ..	7.37
F between levels	Sig,
S. Em +	0.04
C. D. (0.05)	0.11
F Treatments Vs control	Sig.
S Em +	0 08
C. D. (0.05)	0.23
Methods of application	
M_1	6.94
M_2	7.20
M_3	7.12
M_4	7.17
M_5	7.16
F Test	Sig.
S Em +	0.05
C. D. (0.05)	0.15

nitrogen, the nitrogen absorbed by the plant after flowering could be increased substantially resulting in higher protein content of grain. The leaf area under study has shown that a larger number of leaves remained green in plots fertilized with full basal neem coated urea compared to complete basal application of urea. This brings out clearly that nitrogen availability in these plots remained rather high even after flowering. This nitrogen supply after flowering has produced a high content of protein in grain.

സംഗ്രഹം

യൂറിയ തനിയേയും, യൂറിയ വേപ്പിൻ പിണ്ണാക്കു പൂശിയും നെൽച്ചെടിക്കു നൽകുമ്പോഴും നെൽമണികളിലെ പ്രോട്ടീൻ അംശത്തിനു വ്യത്യാസം ഉണ്ടാകുന്നുണ്ടോയെന്നു മനസ്സിലാക്കുന്നതിനുവേണ്ടി വെള്ളായണി കാർഷിക കോളേജിൽ 1973–ലെ വിരിപ്പു കൃഷിയിൽ ഒരു പരീക്ഷണം നടത്തുകയുണ്ടായി.

പരീക്ഷണത്തിൽനിന്നും നൈട്രജന്റെ അളവു rfhgamggsiAoent}0 പ്രോട്ടീൻ rarootroo വർദ്ധിക്കുന്നതായും, ഹെക്ടറൊന്നിനു 120 കിലോഗ്രാം നൈട്രജൻ നൽകുമ്പോഴും പരമാവധി പ്രോട്ടീൻ ലഭിക്കുന്നതായും മനസ്സിലാക്കുകയുണ്ടായി. കൂടാതെ യൂറിയ തനിയേ അടിസ്ഥാനവളമായി നൽകുന്നതു ഏറ്റവും കുറഞ്ഞ പ്രോട്ടീൻ ശതമാനം നൽകുന്നതിനു കാരണമാകുമെന്നും കണ്ടു.

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