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Effect of sources of nutrient on yield and nutritive value of fodder oat (*Avena sativa* Linn) under two cutting systems

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ABSTRACT

A field experiment was conducted during *rabi* seasons of 1999-2000 and 2000-2001 at Research Farm of A.S. (P.G) College Lakhaoti, Bulandshahr, Choudhary Charan Singh University, Meerut (UP)India. to study the effect of sources of nutrient on yield and nutritive value of fodder oat (*Avena sativa* L.).under two cutting systemes on yield of fodder and their subsequent effect on coil properties. Application of 80 Kg. Nitrogen ha^{-1} gave highest green fodder yield of 478.0 and 508.1 q ha^{-1} during 1999-2000 and 2000-2001 respectively and found significantly. Superior over of the N levels. Similarly addition of FYM @ 5 t ha^{-1}along with seed inoculation with *Azotobacter* significantly enhanced the fodder yield and gave 12.92, 11.38 percent higher yield over control.This treatment also improved the quality of fodder with respect to protein content and digestibility both.

Key words : Fodder oat, Nitrogen, FYM, *Azotobacter*

INTRODUCTION

Fodder oat requires a large quantity of fertilizer N for enhancing production of quality herbage. Moreover, the vegetative parts of crop are significantly influenced by nitrogen application which compels to be fully dependent on the nitrogenous fertilizers and give rise to the possibility of nitrate hazards to the ruminants. In addition to production components, associated factors also need due consideration to achieve our goal in a safeguard manner. Keeping the above points in view the present experiment was carried out, with an object to find out the low cost input means of nutrients under different cutting management.

MATERIALS AND METHODS

A field experiment was conducted during *rabi* seasons of 1999-2000 and 2000-2001 at A.S. (PG) College, Lakhaoti, Bulandshahr (UP) India. The soil of the experimental field was sandy loam, with pH 7.4, organic carbon 0.45% available N 208 kg, P_2O_5 18 kg and available K_2O 270 kg ha^{-1}. The treatments comprised of 4 levels of nitrogen (0, 40, 60 and 80 kg ha^{-1}) as the main plot treatments, 4 supplemental sources of N (Control, *Azotobacter* inoculation, FYM 10 t ha^{-1}, *Azotobacter* + FYM 5 t ha^{-1}) as the sub-plot treatments and 2 cutting systems (single cut at 75 DAS, double cut at 55 and 75 DAS) as the sub-sub plots. These treatments were laid out in a split-plot design with three replications. The seeds of oat variety 'JHO-822' were sown on 20th and 16th November 1999 and 2000, respectively, with a seed rate of 100 Kg ha^{-1} in rows at 25 cm apart. The fertilizer was applied @ 60 Kg P_2O_5 and 30 Kg Kg_2O ha^{-1} in the form of SSP and MOP along with the half dose of nitrogen as per treatments in the form of urea as a basal dose. The remaining half dose of nitrogen of each treatment was broadcasted in two equal splits at 30 and 55 DAS, Farmyard manure was applied as per treatments before opening the furrows. Oat seeds were treated with *Azotobacter* biofertilizer @ 10 Kg Kg^{-1} seed, just before sowing. In all, four irrigations were given at crown-root initiation tillering and later two irrigations at 30 days interval. The rainfall received during the crop growth period was 22.4 and 34.6 mm. during 1999-2000 and 2000-2001, respectively.

RESULTS AND DISCUSSION

Fodder yields :

Data presented in Table 1 reveal that yields of fodder significantly influenced by various treatment and their interections. The increasing levels of introgen significantly increased the green as well as dry fodder yields. Application of 80 Kg N ha^{-1} gave maximum green and dry fodder yields of 493.00 and 98.75 qha^{-1}, respectively. And these were just double over without nitrogen (N_0) application (238.3 and 48.6 qha^{-1} respectively) treatment. Similar findings were also reported by Singh *et al.* (2000), Patel and Rajagopal (2002) further it was noted that the combined application of FYM and Azotobacter give rise

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