

# Better Yield of Crude Protein and Efficiency use of Nitrogen by Sorghum Under catchment Area of Penganga River Nanded District (M. S.)

**Shyam Laxmanrao Ingle**

Asst. Professor, Department of Botany

H. J. P. College, Himayatnagar, Nanded, Maharashtra, India

**Abstract:** *The field experiments were conducted in the catchment area of Penganga river at Himayatnagar Dist. Nanded during year 2021-2022. During the experiment different gradation of nitrogen in the form of Urea on treated Sorghum (Sorghum bicolor L.) The yield of green fodder, Crude protein and efficiency in using Nitrogen added through fertilizer were measured the gradation used different dosage of Nitrogen and studied by efficiency of Nitrogen by Sorghum.*

**Keywords:** Sorghum, Nitrogen fertilizer, Green folder, Crude protein and efficiency.

## I. INTRODUCTION

Sorghum (*Sorghum bicolor* L.) .Sorghum bicolor cereal grain plant belongs to family Poaceae. The plants originated in Africa. In India jowar is mainly concentrated in the peninsular and Central India like Maharashtra, Telangana, Madhya Pradesh, and Gujarat is major growing state. Sorghum is strong grass and usually grows to a height 0.6-2.4 meter (4.6 meters) ie feet. The leaves are about 5cm broad and 76cm (2.5 feet) long. The crops require minimum rainfall of 350 to 400mm for flowering stage. The crops can be grown medium to black soil are suitable for growing. The crop is grown both Kharip (July to November) and Rabi (October to February) season. In Maharashtra famous hybrid varieties are such as CSH-5, CSH-7, CSH-9 and Maldandi -35. The recommended doses of fertilizer is 80kg Nitrogen, 30kg phosphorus pentoxide per hectare. The sorghum is more beneficial by using intercropping system. Sorghum and Cowpea (1..1) in 1980-81, sorghum green fodder is 28873 kh/ha with Cowpea obtained in the farm of Marathwada University campus at Aurangabad Kature (1982). Being essentially a crop rich carbohydrates it makes Sillage a good quality (Chatterjee and Mati (1978).

A high yielding fodder crop like maize use chemical fertilizer like nitrogen in different doses (Control, 30K/ha, 60kg/ha, 90K/ha, 120kg/ha). The crude protein yield on control quadrates was 88 and 96 kg/ha observed during the year 2021-22 respectively. The maximum crude protein 549 and 473 kg/ha was recorded quadrate treated with N 90 and N 60 kg/ha during the year 2021-22 respectively. The present report strongly supported by Bhuktar (1995) and Bhuktar and Mungikar (1998). The maximum efficiency 81.96 percent was observed at nitrogen gradation of 90 kg/ha in the year 2021 and 100.53 in 2022-23 respectively.

## II. METHOD AND MATERIAL

The field experiments were conducted under catchment area of penganga river during 2021-22. In this experiment carried five fertilizer treatment (gradation method) with two replication was carried out in a RBD (Randomized block design). Land prepared in summer season (plowing and rowing) and before sowing pure compost 1500kg/ha FYM (Farm Yard Manure) added in experimental land area. Each plot jowar sown by hand method and vegetative growth of fodder crop Influence of fertilizer Nitrogen gradation (Control, 30kg/ha, 60kg/ha, 90kg/ha, 120kg/ha) at different plot and result obtained differently. After cutting fodder crop jowar in all plot chemical analysis done and nutrition percentage obtained by Microkheldhal method. The crude protein obtained (N x6.25). After total chemical analysis efficiency of nitrogen shown in table. The present report strongly supported by Nelson C.E. 1952  
Chemical analysis

Crude protein..On a average,most protein has 16 percent Nitrogen in their composition.Thus the amount of N content ,when multiplied by 6.25,gives a crude protein.

Crude protein --Nx6.25.

The chemical analysis of fodder crop like Sorghum was done.The analysis of fodder crop done by A.O.A.C. in (1970), Bailey (1967),Fiske and Subbarao(1925)Osar (1979).

**Yield of crude protein and efficiency use of nitrogen by sorghum during the year 2021**

Fertilizer Treatment	Yield of crude protein	Gain in yield of CP from additional N	Yield of N protein/6.25 (kg/ha)	Efficiency in using N added through fertilizer (%)C
C	88	-	-	-
30	149	61	9.76	32.53
60	351	263	42.08	70.13
90	549	461	73.76	81.96
120	448	360	57.60	48

**Yield of crude protein and efficiency use of nitrogen by sorghum during the year 2022**

Fertilizer Treatment	Yield of crude protein	Gain in yield of CP from additional N	Yield of N protein/6.25 (kg/ha)	Efficiency in using N added through fertilizer (%)C
C	96	-	-	-
30	211	115	18.48	61.33
60	473	377	60.32	100.53
90	469	373	59.68	66.31
120	436	367	58.72	48.93

**III. RESULT AND DISCUSSION**

Application of Nitrogen (Urea) different dosages Control,30kg/ha,60Kg/ha,90kg/ha,120kg/ha in 2021.In 2021 Nitrogen dosages 90kg/ha was beneficial because of maximum crude protein 549kg/ha obtained but effect of excess dosage 120kg/ha not much more effective and beneficial maximum efficiency 81.96 percent same dosage and same treatment given. In 2022 60kh/ha nitrogen gradation beneficial because 473kg/ha crude protein recorded and also maximum efficiency occurs 100.53 percent obtained given same dosage and same fertilizer treatment.

Due to changing atmospheric temperature, rainfall, humidity above field experiment gets different result in crude protein efficiency. The above result shows that excess nitrogen get decrease yield of sorghum (Non legume crop).

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