ISSN NO: 2771-8840
Date of Publication: 28-05-2023

The effect of levels of nitrogen fertilization and cutting height on the growth characteristics and yield of green and dry forage of white corn (*Sorghum bicolor* L.)

Hadi Sadoon Kadhim AL-skini
Dr. Mohammed Abdul-Raza Abdul Wahed
Dr. Kadhim Kutame Jaber
Department of Field Crop, College of Agriculture, University of Basrah, Iraq.
*e-mail: hadi04445@gmail.com

Abstract: A field experiment was conducted in the field of the College of agriculture, University of Basrah-Ikarma Location (30.57 north latitude and 47.80 west longitude). The field experiment Carried out in spring agricultural Season (2021 2022). The aim of the study was to estimate the effects of five different levels of nitrogen fertilizer (0,150, 200, 250, 300) kg N ha^{-1} in Silt loam Soils and at three different levels of cutting heights (10,20,30) cm on the growth and Forage yield of *Sorghum bicolor* L. which was planted on 1/4/2022. The experiment was applied, according to factorial experiments using randomized Complete block (R.C.B.D) with three replications. The replications were distributed randomly in each section. Three plant cuts were taken from the harvest. The following three traits were studied: Plant height, number of tillers, and Forage yield. The results showed 250 kg N ha^{-1} has excelled, recording the highest average of plant height (168.70, 136.13, 112.97) cm, and the highest average for the number of tillers (4.10, 2.79, 2.36) tiller $plant^{-1}$, and also has achieved the highest average for green Forage yield (39.35, 33.91, 22.83) t ha^{-1}, and for dry Forage yield (10.21, 9.73, 6.44) t ha^{-1}For the first, Second, third plant cuts respectively. The results have also shown that cutting height effects were significant in Most of the following traits: growth, food yield, genotype of different plant cuts. The cutting height of (10 cm) has achieved the highest average for the number of tillers (3.46, 2.13 , 2.06) tiller $plant^{-1}$, and the highest green Forage Yield (32. 20, 27. 26, 18. 71) t ha^{-1}, and for dry Forage yield (8. 11, 7.74, 5.07) t ha^{-1} that for the first, Second and third plant cuts respectively. The effects of interaction between nitrogen fertilizers and cutting heights were significant in most traits of growth, dry and green Forage yield which recorded coefficient of interference equals(250 kg N ha^{-1}) with cutting height of (10 cm) , The highest average for the number of tillers (4.27, 3.05, 2.65) tiller $plant^{-1}$, and the highest average for green Forage yield (43.47, 39.07, 25.87) t ha^{-1}, and for dry Forage yield (11.25, 11.30, 7.16) t ha^{-1} For the first, second, and third plant cuts respectively.

Keywords: Harvest, nitrogen fertilizer, cutting heights

Introduction

The white corn plant *Sorghum bicolor* L. belonging to the Poaceae family it is one of economic corps in the world. As well as, the importance of Sorghum bicolor comes in fifth place in the world after wheat, barely, rice and the yellow corn. However it is concerded Forage corps or concentrated Forage and green Forage which is used as food for animals. as well, it is impossible to make silage and thresher from it, and because lack of green Forages plant, especially in summer season which is required to increased and extension to cultivate green Forage in the summer, like white corn. And the expansion of planted these corps in summer will revive the livestock in the southern region in Iraq. It's ability to be growth and branch after the plant cuts with the reservation of good Forage that is made the plant green which is provide the number of the tillers during the summer season, which it's characterized the plant with clear lack of green Forage, and that's make the plant one of the important summer forage Forage. Like (Parkash et al in 2010 and Al-sadoon 2011, Addaher). One of the agricultural mothed that is lead to increase the production green Forage, it is the interest of fertilization and especially with nitrogen fertilizer, because of the important role to increasing the cell devisions of the plant which is reflected that positively on the heights of the plant and the number of the tillers, which is leads to increase the size of vegatative and the roots system of the plant, which is effect positively on the Forage yield like (Hermerly , 2016) . And another important agricultural process that it's had significant effect in the growth of Forage corps, that determine the height of agricultural distance or