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Influence of Poultry Manure and Weed Control Method on the Performance and Growth Indices of Irrigated Sweet Corn (*Zea mays saccharata* L.) in Sudan Savannah, Nigeria

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Abstract: **A field experiment was conducted in Kano Sudan Savannah zone of Nigeria to study the Influence of poultry manure and weed control method on the performance of Irrigated sweet corn during Dry season of 2019. The experiment was laid out in split plot design with five main plot and six sub plot treatments. The main plot treatments comprised of four different rates of poultry manure (0, 3. 6 and 9 t/ha) and one recommended level of NPK (120:60:60) fertilizer, the subplots comprises of the six weed control method (two pre-emergence, two post-emergence herbicides, a two hoe weeded at 3 and 6 WAS and a weedy check as a control). Thus, the treatment combinations were replicated thrice. The results pointed out that application of 9 t/ha poultry manure resulted in significantly better growth indices while application Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, effectively controlled weeds and resulted in better growth and development and this can be recommended for production of sweet corn in the study area.**

Keywords: **Poultry Manure, Weed Control Methods, Irrigation and Sweet Corn.**

I. INTRODUCTION

Maize (*Zea mays* L.) is one of the most important and versatile emerging cereal crop of the world, World population is geometrically increasing and is expected to attain seventy billion by the year 2050[21]. This rapid population growth accompanied by urbanization and industrialization posed threat to food security. Vagaries of climate change have placed the greatest thread to agriculture in many regions especially drought prone areas. Maize is consumed in wide variety of solid and semi-fluid foods like porridges, paste grits beer and other ways. Sweet corn (*Zea mayssaccharata* L.) also known as sugar corn is hybridized version of maize specifically bred to increase the sugar content and is also a vegetable crop with an important dietary significance. It's eaten parched, baked, roasted or boiled and adding to a salads or pizzas etc. and plays an important role in filling hunger gap after dry season [14]. It is an important source of carbohydrate, protein, iron, vitamins B, and Minerals [16]. It is also use for livestock feeds production of meat, eggs and dairy products (milk and yoghurt) will be difficult without maize, although its production in Nigeria is on a small scale, but is gaining popularity both in rural and urban areas because of it greater importance [20]and [21]. Sweet maize production is constrained by poor soil fertility and weed infestation, lack of effective use of fertilizers, lack of proper weed management practices and inability of most farmers to acquire inputs for optimum production of the crop as well as in field maize production.

Nigerian soils is deficient of N and P nutrients with low organic matter content, low cat ions exchange capacity and also low inherent fertility as characteristic features [12]. High cost of inorganic fertilizers as its challenges of availability have affected its accessibility to resource poor farmers thereby resulting in the use of insufficient qualities at the right time of need which often lead to poor yields [13]. In order to overcome those problems and challenges, it becomes necessary to find out an alternative means of sustaining and improving soil nutrient status. This can be by application of organic manure which can be sourced from various sources and include; cow dung, sheep and goat manure, poultry manure etc. Manure is an important resource for sustainable crop production and soil fertility [3]. Organic manure also enhances microbial activities due to available organic carbon. Poultry manure has been found to be very promising as it contains higher amounts of mineral nutrients which is easily mineralize in the soil for plant uptake [2]. Poultry manure also contains little or no variable weed seeds which will definitely reduce the level of weed infestation on farmer fields.

Weeds affect maize by competing for nutrients, light, water and space. It also harbours insect pest and diseases that damage the crop [15].Weed control is the most expensive operation in traditional maize farming since it is done manually, which is labour intensive, time consuming and mainly done by women preventing them from attending to house activities and attending young once and preventing small children from going to schools. It is because of these limitations associated with hoe weeding that the use of herbicides is considered more appropriate. This and many others resulted in the adoption of chemical weed control which has been found to be very efficient and devote of limitation of crop losses, drudgery and labour cost[1, 6 and 7].

Weed interference in sweet maize resulted in a significant yield loss of about 15 to 85% yield loss depending on planting time [23]. Sweet maize is considered as a week competitor because of its shorter and less developed habitus, which makes effective or use of chemical weed management systems a priority. Low densities of weeds also caused sweet maize yield losses [24]. [6] Further reported that, overall weeds impose the highest loss potential which is higher than loss potential due to animals (8%), fungal and bacterial pathogens (16%) and viruses (2%). According to [11] and [4] the feasibility to increase yield is more because yield potentials of maize has not been realized so far in Nigeria, as there is large gap between potentials and actual yield per hectare. It is important to determine the most suitable agronomic techniques for improving the production of sweet maize. The objective of the present study was to determine the best poultry manure rate and effective weed control method that will suppressed weed and give optimum growth and yield of sweet maize fresh ear yield.

II. MATERIALS AND METHODS

Field experiments was conducted during the rainy season of 2019 at the Teaching and Research Farm of Faculty of Agriculture and Agricultural Technology Kano University of Science and Technology Wudil Kano Nigeria latitude (11^0 58'N, 8^0 25'E and 450m above seas level) location II is Irrigation research Station of the institute for Agricultural Research, Kadawa (11^0 39'N, 8^0 27'E and 500m above seas level). Soil samples were taken from 0 – 15 cm depth, and was analysed for its physico chemical properties.Poultry manure used was purchased from a from a laying birds under battery cage system, and was also analyzed for moisture content, N, P, K, Ca. Mg, Na, total organic carbon, organic matter as well as other micro elements. Meteorological data was collected from Geography department of Kano University of science and technology Wudil for location I and that of Location II was collected from weather station of the Research station at Kadawa.

A. Treatments and Experimental Design

The trails consisted of factorial combinations of four levels of poultry manure, at (0, 3, 6 and 9t ha^{-1}) and a recommended rate of NPK fertilizer as check at the rate of 120 kg N, 60 kg P_2O_5 and 60 kg K_2O ha^{-1} and six weed control method consisting of two pre-emergence, two post-emergence herbicides, a two hoe weeded at 3 and 6 WAS and a weedy check as a control. Poultry manure was applied 2 weeks before sowing while pre-emergence herbicide was applied a day after sowing and the post-emergence herbicide were applied at 6 WAS. The treatments was laid out in a split plot design with poultry manure and NPK fertilizer placed in the mail plot and weed control method in the sub plot, and was be replicated three times.

Observations and data collection were done on plant height by using tape to measure from base of the plant to the top, number of leaves was measured by counting the leaves manually, leaf area index was measured using SPAD and crop growth rate using the below relation as suggested by Watson [22], plant aspect using a scale of 1-5 (1 dead plant, 2 poor appearance crop, 3 fairly good plant, 4 Good plant and 5 excellent overall appearance). Data collected was subjected to

statistical analysis of variance (ANOVA) to test for significance difference among the means as described by [19]. Means were compared using Students Newman-Keuls Test (SNK).

B. Results and Discussion

The plant height of sweet corn was significantly different at all sampling periods at KUST and at 6 and 10 WAS at Bunkure (Table 1). In all the cases all the poultry manure and recommended NPK fertilizer levels resulted in taller plants than the control (0 t/ha). The effect of weed control method on plant height was significant across all sampling periods and locations except at Bunkure during 8 WAS sampling periods that resulted in non significant effect (Table 1). Application of Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, and Hoe weeding at 3 and 6 WAS at all significant sampling periods produced statistically the tallest plants while weedy check resulted in significantly shortest plants that were statistically at par with all other treatments throughout the sampling periods as well as the locations. Similar findings were reported by [10] that, Crops are known to attain better canopy with higher number of leaves per plant in a less weed competitive situation than in a weedy environment.

The leaf area index (LAI) of sweet corn as influenced by poultry manure and weed control method is presented in Table 2. Across the two locations and the sampling periods, Poultry manure was significantly affected at 8 WAS at KUST and at 6 and 10 WAS at Bunkure, wider and statistically similar leaf area index were recorded with all poultry manure and NPK fertilizer levels as compared with the control plots (0 t/ha) that resulted in narrower leaf area index across all significant periods as indicated by [18] who reported that, wider LAI associated with the nitrogen treated plants have been probably due to increase in chlorophyll content of the leaf and leaf production in plots treated with higher levels of poultry manure.

However, weed control method was significant al at all sampling periods except at 6 WAS at KUST were a non significant result was observed, across all significant periods T5 resulted in statistically wider leaf area indexes and were statistically the same with the all other treatments at KUST and Bunkure, while statistically similar with the Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1} and Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} at Bunkure during 6 WAS as compared with all other treatment. The narrowest leaf area indexes were recorded by weedy check plots. The wider and higher dry matter recorded by these treatments could be attributed to less weed competition resulting in better use of available growth factors for maximum photosynthetic activities [17].

Table 2 presents the leaf chlorophyll content of sweet corn at both locations indicated that application of 9 t/ha poultry manure across all sampling periods resulted in significantly higher chlorophyll content that was statistically the same with application of NPK fertilizer, poultry manure at 3 and 6 t/ha across at almost all sampling periods. The result is in harmony with that of [13] who reported that, 8 t ha^{-1} poultry manure resulted in significantly increase in maize performance and yield. The effects of weed control method was significant across all sampling periods with hoe weeding at 3 and 6 WAS, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. $ha^{-1}$and Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} produced plants with higher chlorophyll contents as compared with all other treatments which could be due to the ability of Metolachlor in preventing weed emergence and suppressing weed growth. Lower mean values of chlorophyll recorded in the weed check may be attributed to higher density of weeds in weedy check plots which correspondingly drew a wider range of nutrients from the crop as evidence by lower chlorophyll content observed in weedy check plots [7].

The plant aspect of sweet corn influenced by poultry manure and weed control method is significantly different at 8 WAS sampling period at KUST and at 6 and 8 WAS at Bunkure (Table 4). In all sampling periods application of NPK fertilizer and application of 9 t/ha poultry manure resulted in statistically good plant appearance. The result corroborated with the finding of [2] who pointed out that, nitrogen is the principal nutrient in poultry manure and is associated with aspect (vigour growth) and dark green colour of leaves which plays significant role in photosynthesis which as well leads to increases in the production of higher growth indices.

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Table 1: Influence of Poultry Manure and Weed Control Method on Performance of Irrigated Sweet Corn on Plant height, and Leaf Area Index at KUST, Wudil and Bunkure, 2020 During Dry Season

Treatment	Plant Height						Leaf Area Index					
	KUST (WAS)			BNK (WAS)			KUST (WAS)			BNK (WAS)		
	6	8	10	6	8	10	6	8	10	6	8	10
Poultry Manure (PM) (t ha^{-1})												
0	37.7b	79.1c	98.7c	56.4c	94.0	108.6b	0.5	1.1b	2.8	0.9b	1.3	1.2b
3	60.5a	116.4abc	160.4a	67.2b	126.6	145.2a	1.1	1.9a	2.8	1.3a	1.8	2.3a
6	61.3a	126.6ab	167.1a	76.4ab	116.4	160.4a	1.2	1.9a	2.8	1.3a	1.9	2.4a
9	67.6a	135.3a	161.9a	78.9a	135.3	167.1a	1.2	1.9a	2.7	1.3a	1.9	2.4a
NPK (120:60:60)	63.4a	121.3ab	125.2b	72.7ab	121.3	161.9a	1.7	2.0a	2.5	1.4a	2.0	2.4a
SE ±	3.44	11.31	10.83	2.45	10.44	10.71	0.28	0.16	0.17	0.10	0.16	0.20
Weed Control Method (WCM)												
T1	59.8b	115.0a	147.3b	71.4b	119.4	149.0a	1.0	1.7a	2.4c	1.1bc	1.8a	2.0a
T2	59.6b	113.0a	145.0b	69.7b	116.8	148.8a	1.0	1.7a	2.4c	1.2b	1.7a	2.2a
T3	64.4ab	130.8a	163.0ab	77.9ab	134.3	163.3a	1.1	1.9a	2.9b	1.4a	2.0a	2.3a
T4	68.3a	134.9a	181.4a	81.8a	136.0	182.0a	1.2	1.9a	2.9b	1.4a	2.0a	2.4a
T5	66.9ab	130.9a	156.4ab	79.6ab	131.9	157.4a	1.9	1.9a	3.4a	1.4a	2.0a	2.4a
T6	29.6c	69.9b	87.0c	41.5c	74.1b	91.2b	0.6	1.3b	2.3c	0.9c	1.4b	1.6b
SE ±	2.12	6.45	8.97	2.70	6.75	9.13	0.33	0.08	0.13	0.06	6.0	0.12
CV (%)	3.3	10.5	10.8	0.7	9.4	9.8	22.0	6.0	9.2	4.4	0.08	10.1
Interaction												
PM x WCM	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Means followed by the same letter(s) within a column of each treatment group are not statistically different at 5% level of probability using (SNK). T1 - S-Metolachlor +Atrazine at 2.0 kg a.i. ha^{-1} followed by Nicosulfuron at 0.1 kg a.i.ha^{-1}, T2 - S-Metolachlor + Atrazine at 2.0 Kg a.i. ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}. T3 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1}, T4 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, T5 - Hoe weeding at 3 and 6 WAS, T6 - Weedy Check, WAS – Weeks after sowing, NS - Not significant, WCM - Weed control Method, PM - Poultry Manure.

Table 2: Influence of Poultry Manure and Weed Control Method on Performance of Irrigated Sweet Corn on Chlorophyll and Crop Injury Score at KUST, Wudil and Bunkure 2020 Dry Season

Treatment	Chlorophyll (WAS)						Plant Aspect (WAS)					
	KUST			BNK			KUST			BNK		
	6	8	10	6	8	10	6	8	10	6	8	10
Poultry Manure (PM) (t ha^{-1})												
0	11.9b	35.6b	24.9b	18.6c	33.2c	27.2b	2.1	3.1b	2.4	2.1c	3.1b	2.1
3	20.3ab	51.1a	61.8a	28.1bc	51.1	64.0a	2.3	3.3a	2.7	2.6a	3.1b	2.4
6	22.4ab	56.8a	67.2a	35.0ab	57.3a	68.9a	2.4	3.3a	2.8	2.4b	3.3b	2.3
9	25.4ab	63.5a	70.5a	39.9a	64.0a	72.6a	2.9	3.6a	2.8	2.7a	3.7ab	2.6
NPK (120:60:60)	30.7a	61.3	70.4a	42.1ab	61.3	70.5a	3.1	4.3a	2.8	2.8a	4.2a	3.2
SE ±	3.2	2.94	2.37	2.99	3.41	2.90	0.24	0.16	0.17	0.17	0.20	0.22
Weed Control Method (WCM)												
T1	22.4ab	51.3c	58.6c	31.7c	52.8b	59.7c	2.1b	2.9c	2.4c	2.9b	2.8c	2.7c
T2	20.1ab	44.5d	45.5d	27.8d	46.5c	55.6c	2.1b	2.9c	2.4c	2.9b	2.8c	2.7bc
T3	25.8a	61.0b	66.5b	35.7b	57.2b	66.6b	2.6a	3.9b	2.9b	2.4a	3.9c	2.3abc
T4	25.9a	64.0ab	71.2ab	42.2a	64.0a	71.9ab	2.7a	3.9b	2.9b	2.3a	3.9b	1.8a
T5	26.5a	67.8a	76.6a	37.1b	65.7a	74.9a	3.5a	4.8a	3.4a	2.4a	4.8a	2.1ab
T6	12.1c	33.3e	34.7e	22.0e	33.8d	35.0d	1.9c	2.9c	2.1d	3.3c	2.8c	3.5d
SE ±	1.3	1.98	2.07	1.36	1.93	2.14	0.15	0.10	0.13	0.13	0.11	0.17
CV (%)	8.4	13.6	3.4	18.8	12.9	3.2	9.1		9.2	9.2	4.4	10.1
Interaction												
PM x WCM	NS	NS	NS	NS	**	NS	NS	NS	NS	NS	N	NS

Means followed by the same letter(s) within a column of each treatment group are not statistically different at 5% level of probability using (SNK).

Table 3: Interaction between Influence of Poultry Manure and Weed Control Method on Chlorophyll at 8 WAS at Bunkure, 2020 Dry Season.

Poultry Manure (M) (t ha^{-1})	Weed Control Method (WCM)					
	T1	T2	T3	T4	T5	T6
			Chlorophyll at Bunkure, 2020			
0	38.2m-q	35.6o-r	42.1m-q	46.2j-p	44.2l-p	20.2s
3	48.7i-o	46.4k-o	61.9b-i	62.3b-h	62.4b-g	22.4rs
6	50.9e-m	49.2g-n	65.2b-e	68.3a-d	64.4b-f	31.5p-s
9	60.2c-j	59.9c-k	75.8ab	69.3a-d	73.6abc	35.3n-r
NPK (120:60:60)	58.6d-l	52.8e-m	71.1a-d	74.9ab	82.5a	27.7qrs
SE ±			5.20			

T1 - S-Metolachlor +Atrazine at 2.0 kg a.i. ha^{-1} followed by Nicosulfuron at 0.1 kg a.i.ha^{-1}, T2 - S-Metolachlor + Atrazine

at 2.0 Kg a.i. ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}. T3 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1}, T4 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, T5 - Hoe weeding at 3 and 6 WAS, T6 - Weedy Check, WAS – Weeks after sowing, NS - Not significant, WCM - Weed control Method, PM - Poultry Manure.

The result corroborated with the finding of [2] pointed out that, nitrogen is the principal nutrient in poultry manure and is associated with aspect (vigour growth) and dark green colour of leaves which plays significant role in photosynthesis which as well leads to increases in the production of higher growth indices.

The influence of weed control method was significantly different across all sampling periods and locations (Table 2). Hoe weeding at 3 and 6 WAS resulted in significantly good to excellent plants that were statistically similar with application of Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. $ha^{-1}$and Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} at 6 WAS at both locations and with Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}only at 10 WAS sampling period at Bunkure as compared with the other weed control treatments.

In a related development made by [8] found consistency in better growth, and seed yield were recorded in chemical weed control. However, the weedy check significantly recorded the poorest plants that were at par with all other treatments, this is attributed to the above and below ground competition of weed that might have retarded the vigour of the crop. In a related study by [10]indicating that uncontrolled weeds suppressed the growth of the crops in weedy check plots.

The interaction between poultry manure levels and weed control method on leaf chlorophyll contents of sweet corn is presented in Table 3. There is significant interaction among the factors evaluated at 8 WAS sampling period at Bunkure, indicating that hoe weeding at 3 and 6 WAS along with application of recommended NPK fertilizer resulted in highest leaf chlorophyll content that was statistically similar with hoe weeding at 3 and 6 WAS FOR recommended NPK fertilizer, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1} for NPK fertilizer, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} for NPK fertilizer, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} for 9 t /ha poultry manure, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1} for 9 t/ha poultry manure, and Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. $ha^{-1}$for 6 t/ha poultry manure and was closely followed by application of 6 t ha-1 poultry manure for hoe weeding at 3 and 6 WAS compared with all other combination. This could be attributed to the ability of poultry manure in supplying adequate nitrogen for cell division and extension, which increased the growth of the plant as seen in significant increases observed on plant height, leaf area index and plant aspect observed in this research work. The results are in harmony with that of [3], they pointed out that N playing an important role in chlorophyll, amino acid and nucleic acid require in plant growth and development that is in fertilizer and cow dung.

The influence of poultry manure and weed control method on weed dry weight was significant across both locations (Table 4). The results, showed that control plots (0 t/ha), application of NPK fertilizer and 3 t/ha at Bunkure statistically resulted in heavier weeds as compared with all other poultry manure levels. The influence poultry manure and weed control method on weed dry weight was significant across both locations application ofMetolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}producing the least weed dry weight which is statistically similar with some other treatments as compared with the other treatments, weedy check resulted in significantly higher weed dry weight that was at par with all other treatments as compared with all other treatment. This is because of the facts that weedy check did not receive any weed control treatment, therefore enables the weed to dominate the plots and competes for nutrients, water, light and space, resulting to higher weed dry weight. In another related development [9] pointed out that, uncontrolled weed growth causes more injury and reduced growth and development of maize saccharata under irrigation.

The influence of poultry manure and weed control method on weed control efficiency in sweet corn production is presented in Table 4. Application of poultry manure and recommended NPK fertilizer resulted in statistically higher weed control efficiency as compare with control plot (0 t/ha) while control plot (0 t/ha) poultry manure resulted in statistically lower weed control efficiency across both locations. The effect of weed control treatments on weed control efficiency was significantly different with application of Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1} and hoe weeding at 3 and 6 WAS statistically recording the highest weed control efficiency across both sampling locations as compared with all other treatments.

Table 4: Influence of Poultry Manure and Weed Control Method on Performance of Irrigated Sweet Corn on Weed dry weight, Weed Control Efficiency, Biological Yield and Fresh yield at KUST, Wudil and Bunkure 2020 During Dry Season.

Treatment	Weed Dry Weight		Weed Control Efficiency	
	BNK	KUST	BNK	KUST
Poultry Manure (PM) (t ha^{-1})				
0	123.9a	103.2a	18.4b	18.4b
3	78.5b	75.7abc	23.4b	39.0a
6	68.6b	56.9bc	38.9a	48.0a
9	57.1b	56.6c	48.4a	48.4a
NPK (120:60:60)	94.9ab	91.2ab	47.9a	39.0a
SE ±	9.03	7.65	4.54	4.92
Weed Control Method (WCM)				
T1	86.7b	81.1b	29.8c	32.9b
T2	74.2bc	75.1bc	35.6bc	37.0b
T3	62.2bc	71.6bc	43.2ab	52.7a
T4	58.4c	55.4d	53.1a	57.9a
T5	81.4bc	66.5c	49.2a	49.3a
T6	143.9a	110.7a	1.4d	1.0c
SE ±	6.87	3.82	3.52	3.57
CV (%)	23.0	29.2	15.5	20.6
Interaction				
PM x WCM	NS	NS	NS	NS

T1 - S-Metolachlor +Atrazine at 2.0 kg a.i. ha^{-1} followed by Nicosulfuron at 0.1 kg a.i.ha^{-1}, T2 - S-Metolachlor + Atrazine at 2.0 Kg a.i. ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}. T3 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Nicosulfuron at 0.1 kg a.i. ha^{-1}, T4 - Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1}, T5 - Hoe weeding at 3 and 6 WAS, T6 - Weedy Check, WAS – Weeks after sowing, NS - Not significant, WCM - Weed control Method, PM - Poultry Manure.

Similar reports were recorded by [8] who showed that, Pendimenthalin at 1.0, 1.5 and 2.5kg a.i./ha gave adequate weed control and grain yield of millet compared with that of hoe weedy check. Similarly, in an earlier result by [13] reported the effectiveness of season long weed control of Metolachlor in mixtures or followed by other herbicides. This is because of selectivity of the herbicide to kill the weeds while leaving the crop safe as observed in this study. The result also showed that weedy check recorded the least weed control efficiency. These finding is consonance with the finding of [5] pointed out that, a total of 263 weed species belonging to 38 families were found in crop fields in West Africa, were the highest weed dry weight observed in the weedy check was due to the severe uncontrolled weed infestation.

C. Conclusion

The study concluded that application of poultry manure at 9 t/ha performed better and significantly enhanced sweet corn by providing adequate nutrients which increased growth indices and development; application of Metolachlor + Terbuthylazine + Mesotrione at 2.5 kg a.i ha^{-1} followed by Bentazone at 2.5 kg a.i. ha^{-1} to Sweet corn adequately controlled weeds and resulted in better growth and development in the study areas.

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