# EFFECT OF NPK FERTILIZER AND WEEDING REGIME ON THE GROWTH AND YIELD OF EGG PLANT (*Solanum melongena* L.) IN ABAKALIKI

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**ABSTRACT**

The effect of NPK fertilizer and weeding regime on the growth and yield of eggplant (*Solanum* melongena L.) was evaluated. The experiment was a 3 x 4 factorial laid out in Randomized Complete Block Design (RCBD).There were three replications of each treatment. Statistical analysis of data was done using analysis of variance (ANOVA) and separation of treatment means for significant effect was by the use of Least Significant Difference (LSD). Results showed that plant height, stem diameter, number of fruits and weight of fruits increased as the NPK rate increased from 0kgNPK/ha to 150kgNPK/ha. Fertilizer rate of 150kgNPK/ha produced the tallest plants (49.88cm), highest stem diameter (3.14cm), number of fruits (34.33) and weight of fruits (32.43 kg). The highest number of leaves (166.24), number of branches (14.07), stem diameter (3.01cm) and the longest number of days to 50% flowering (34.78days) was obtained on the weed – free plots while the unweeded plots which gave the highest weed biomass consistently produced least values in all the vegetative and yield measurements taken.

**Keywords:** *Eggplant, NPK fertilizer, weeding regime, vegetative growth and yield.*

**INTRODUCTION**

Eggplant (*Solanum melongena*) belong to the family Solanaceae. It is a perennial herb which is woody at the base. It has large purple egg – shaped fruits and the crop requires a temperature of 25 – 35$^{oC}$ for optimum growth and development. Eggplant improves human diet by adding flavour to meals. It is also a cheap source of vitamins and minerals (Oyenuga and Fetuga, 1975). It is valuable as roughage because it promotes digestion and helps to prevent constipation (Aliyu *et al.,* 1998). Eggplant is grown during the dry and wet seasons and because of its relatively high yield, it is an important commodity in the local trade and a source of income to the farmer (Aliyu *et al.,* 1992).

The yield of eggplant in Nigeria is generally low due to the use of varieties that are of narrow genetic base which are grown on soils that are of inherent low fertility (Dauda *et al.*, 2003). Literature also showed that eggplant responded positively to both mineral and organic fertilizers, giving better yields than the non – fertilized plots (Asiegbu and Uzo, 1984; Aliyu *et al*., 1992, Aliyu *et al.,* 1998). Jose *et al.,* (1998) reported that eggplant is a long duration crop with high yields which removes large quantities of plant nutrients. An eggplant crop yielding about 60 mt/ha of fruits removes 190kgN, 109kg P and 128kg K. Nutrient uptake in eggplant partly depends on the source of nutrients. A combination of both organic and inorganic fertilizers resulted in higher uptake and increased fruit production.

In a trial on eggplant using 224.16 kgNPK/ha and 448.32 kgNPK/ha, Abregts and Howard (1975) reported that marketable yield did not differ between 224.16 and 448.32 kgNPK/ha which was applied to the crop. Poultry manure was compared with a commercial fertilizer source (13: 4: 13) in the production of eggplant (Hochumth and Hochmuth, 1996). The plants received 0, 179.33 and 244.16 kgNPK//hafrom the 13: 4 : 13 fertilizer source or 179.33, 347.45 and 526.78 kg of poultry manure. The results showed that early yields with 179.33 kgNPK/ha were higher from plants fertilized with commercial fertilizer, resulting in 579.45 bushels per hectare compared to the yield from 347.45 kg/ha of poultry manure. The failure of the plants fertilized with poultry manure to produce optimum early yields was attributed to delayed mineralization compared to the readily available commercial fertilizer. Optimum yield

(1,569.12bushels /ha) was recorded with 224.16 kgNPK/ha.

The result of a trial on eggplant grown with 0, 67.25, 134.49, 201.74, 268.99 and 336.24 kgN/ha revealed that yield increased with increasing fertilizer rates from 0 to 336.24 kgN/ha (Hochmuth *et al.*, 1991). Yield response of eggplant grown with 0, 56.04, 112.08, 168.12, 224.16 and 280.20kg showed that early marketable yield increased linearly from 0 to 56.04kgK/ha (Hochmuth *et al.,* 1992, Hochmuth *et al.,* 1993). Three potassium rates – 0, 112.08 and 168.12kgK/ha were used to evaluate the growth and yield of eggplant. Hochmuth *et al.* (1993) reported that fruit yield at 112.08 and 168.12kgK/ha did not differ significantly among themselves. They also noted that nearly 50% of the yields from K – fertilized plants were No. 1 large plants. This large eggplant increased the crop value compared to 72% relative yield from plants that received no potassium.

The effect of three planting densities (33333, 41667 and 55555 plants per hectare) and three levels of NPK fertilizer (0, 200 and 400kg/ha) on two varieties of tomatoes (Roma VF 3900 and Roma VF 5-8-285) revealed that as the fertilizer rates increased from 0 to 400kgNPK/ha, plant height, days to 50% flowering, fruit yield and percentage marketable yield increased (Law- Ogbomo and Egharevba, 2009).

Weeds constitute a major hindrance to vegetable production by thriving under moist conditions in which many vegetable crops are grown. This is further exacerbated by the inability of vegetables to develop canopy that can effectively shade the ground to smother weeds at any stage in their life cycle. Consequently, weed pressure is high and often culminates in low crop yield. However, given the increasing need for vegetables to meet the dietary requirements of the increasing human population in the tropics, there is need for effective weed control to attain optimum yield (Akobundu, 1987). Iremiren (1987) observed that hand weeding is still by far the most widely practiced cultural weed control technique in the tropics because of the prohibitive cost of herbicides, the fear of toxic residue and a lack of knowledge about their use. The frequency of such weeding is usually at the discretion of the farmer and may not be economical if yield largely depends on weed removal at critical stages of crop development.

Weeds reduce crop yield and quality by competing with crops for light, water and nutrients (Wilcut *et al.,* 1994). In Nigeria, uncontrolled weeds caused yield reduction ranging from 53 to95% in pepper between 42 and 54% in rice. Contamination of the harvested grain amaranth by weed seeds caused difficulty in processing (Eshel and Ratan, 1972, Adigun *et al.,* 1983; Braveman, 1996).

In an experiment to determine the effect of frequency of weeding for the optimum growth and yield of okra, Iremiren (1988) reported that weed removal within 12weeks of sowing generally resulted in significantly better crop growth and yield than that in the weedy check. Weeding once as early as four weeks was as beneficial to okra growth and yield as two or more weedings later in the 12 weeks period. Weed removal four times at 3, 6, 9 and 12 weeks after sowing significantly increased the number of leaves per plant, stem girth, stem girth, final plant stand and harvest duration. Weed removal may have enhanced crop yield partly by increasing aeration and water movement in the soil. The growth and development of okra was severely checked in the unweeded control plots. He attributed the enhanced okra growth in the weeded treatments to reduced weed competition, increased oxygenation and water movement in the soil as a result of the hoeing of the plots.

Rao (2000) observed that the extent of weed competition depends upon the type of weed species, the severity of weed infestation, the duration of infestation and the climatic conditions which affect weed and crop growth. Reduction in crop yield has a direct correlation with weed competition. Generally, an increase in one kilogram of weed growth corresponds to a reduction in one kilogram of crop growth. Weeds remove plant nutrients more efficiently than crops. In a drought situation, they thrive better than crops. When left undisturbed, some weeds can grow faster and taller than crops and inhibit tillering and branching. They curtail sunlight and adversely affect photosynthesis and plant productivity.

A trial to determine the critical period of weed control in transplanted chili pepper showed that the maximum weed – infestation period ranged between 0.7 and 32 weeks after transplanting at a 5% yield loss level. The result suggests that weeds must be controlled during the first half of the crop's growing season in order to prevent yield losses (Amador – Ramirez, 2002).

## MATERIALS AND METHODS

The experiment was conducted at the experimental field of the Faculty of Agriculture and Natural Resources Management, Ebonyi State University, Abakaliki in the South East zone of Nigeria from 10th July to 10th November, 2009. The length and width of the experimental field measured 29.5m x 8.0m, respectively, giving a total land area of 236 $m^2$. Raised field beds which were manually cultivated were used. The experimental field was divided into three equal blocks and each block consisted of twelve plots, giving a total of thirty – six test plots. Each plot measured 2m x 2m with 0.5m between adjacent plots.

The experiment was conducted as a 3 x 4 factorial laid out in Randomized Complete Block Design (RCBD). There were three replications of each treatment. The treatment comprised three fertilizer rates (0, 75 and 150kgNPK/ha) and four weeding regimes (weeding at 4weeks after transplanting, 6weeks after transplanting, unweeded control and weed – free). The seedlings of eggplant were raised in a nursery for a total period of four weeks after which they were transplanted at the rate of two seedlings per hole. They were later thinned down to one seedling per hole.

Fertilizer (NPK 20 -10-10) was applied to the crop two weeks after transplanting. Weeds were controlled manually using hand hoes according to the various weeding regimes before harvest. Harvesting of the matured fruits commenced at the ninth week after transplanting. The following measurements were taken: plant height, number of branches, number of leaves, stem diameter, number of days to 50% flowering (anthesis), number of fruits and weight of fruits.

**Statistical Analysis**

Statistical analysis of data was based on the procedure outlined by Steel and Torrie (1980) for factorial experiment in Randomized Complete Block Design (RCBD). Data collected was statistically analyzed for differences between NPK fertilizer and weeding regime using analysis of variance (ANOVA) techniques. Separation of treatment means for significant effect was by the use of Least Significant Difference (LSD) as described by Obi (1986).

**RESULTS**

The effect of NPK fertilizer, weeding regime and their interaction on plant height was non-significant at P = 0.05 (Table 1). Plant height increased as the fertilizer rate increased from 0 to 150 kgNPK/ha. The tallest plant was recorded at 150 kgNPK/ha while the shortest was at 0 kgNPK/ha.

Weeding at 4weeks after transplanting produced the tallest plants while the shortest plants were obtained on the unweeded plots. The tallest plants was obtained at 75 kgNPK/ha on plants weeded at 6weeks after transplanting while the shortest was at 0 kgNPK/ha on plants weeded at 6weeks after transplanting.

**Table 1. Effect of NPKfertilizer and weeding regime on plant height(cm).**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4 weeks | 39.30 | 47.45 | 58.98 | 48.58 |
| 6 weeks | 36.59 | 60.57 | 41.58 | 46.25 |
| Weed – free | 42.54 | 50.99 | 47.58 | 47.04 |
| Unweeded | 43.25 | 37.35 | 51.39 | 44.00 |
| Mean | 40.42 | 49.09 | 49.88 | |

F-LSD (P = 0.05)
NPK fertilizer rate = NS
Weeding regime = NS
NPK fertilizer x weeding regime = NS

There were significant (P = 0.05) differences among the NPK fertilizer rates on the number of leaves produced (Table 2). The number of leaves produced increased as the fertilizer rates increased from 0 kgNPK/ha to 75 kgNPK/ha but beyond 75 kgNPK/ha, number of leaves decreased. The highest number of leaves was recorded at 75 kgNPK/ha while the lowest was at 0 kgNPK/ha and they differed significantly (P= 0.05). However, the number of leaves obtained at 75 kgNPK/ha and 150 kgNPK/ha were statistically similar. Weeding regime had no significant effect on the number of leaves produced. Although, the highest number of leaves was recorded on the weed- free plots while the lowest was on the unweeded plots.

Fertilizer x weeding regime interaction was non – significant. The highest number of leaves was produced at 75 kgNPK/ha on the weed – free plots while the lowest was at 0 kgNPK/ha on plots weeded at 6weeks after transplanting.

**Table 2. Effect of NPKferilizer and weeding regime on number of leaves.**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4 weeks | 103.87 | 155.22 | 194.23 | 151.11 |
| 6 weeks | 68.89 | 199.22 | 175.07 | 147.73 |
| Weed – free | 139.22 | 215.45 | 144.05 | 166.24 |
| Unweeded | 82.02 | 111.43 | 154.78 | 116.08 |

| | | | | |
|---|---|---|---|---|
| Mean | 98.50 | 170.33 | 167.03 | |

F-LSD (P = 0.05)
NPK fertilizer rate = 52.17
Weeding regime = NS
NPK fertilizer x weeding regime = NS

Fertilizer rates, weeding regime and their interaction were not statistically significant on the number of branches produced (Table 3). However, the most profusely branched plants was obtained at 75 kgNPK/ha while the least number of branches was at the control (0 kgNPK/ha). The number of branches increased as the fertilizer rates increased from 0 to 75 kgNPK/ha but not beyond 75 kgNPK/ha. Number of branches was highest on the weed – free plots while the lowest number of branches was obtained on the unweeded plots. The highest number of branches was obtained at 75 kgNPK/ha on plots weeded at 6weeks after transplanting and 150 kgNPK/ha on the weed – free plots while the least number of branches was produced at 75 kgNPK/ha on the unweeded plots.

**Table 3. Effect of NPK fertilizer and weeding regime on number of branches produced.**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4 weeks | 13.28 | 13.22 | 13.11 | 13.20 |
| 6 weekS | 10.78 | 14.94 | 11.94 | 12.55 |
| Weed – free | 13.72 | 13.55 | 14.94 | 14.07 |
| Unweeded | 12.72 | 10.11 | 11.29 | 11.37 |
| Mean | 12.63 | 12.96 | 12.82 | |

F- LSD (P = 0.05)
NPK fertilizer rate = NS
Weeding regime = NS
NPK Fertilizer and weeding regime = NS

The effect of NPK fertilizer rates on stem diameter was significant at P = 0.05 (Table 4). Stem diameter was widest at 150 kgNPK/ha and least at 0 kgNPK/ha and they differed significantly. Stem diameter increased as the fertilizer rates increased from 0 to 150 kgNPK/ha. Stem diameter obtained at 75 kgNPK/ha and 150 kgNPK/ha did not differ among them.

Weeding regime had significant (P = 0.05) effect on stem diameter. The highest stem diameter was obtained on the weed – free plots while the least was on the unweeded plots and they differed significantly. However, stem diameter obtained at 4weeks, 6weeks after transplanting and the weed – free plots were statistically similar.

Fertilizer x weeding regime interaction on stem diameter was significant (P = 0.05). Stem diameter was highest at 75 kgNPK/ha on plots weeded at 6weeks after transplanting while the lowest stem diameter was recorded at 0 kgNPK/ha on the unweeded plots and they differed significantly. Stem diameter of plants produced at 75 kgNPK/ha on plots weeded at 6weeks after transplanting, 75 kgNPK/ha on the weed – free plots and 150 kgNPK/ha on plots weeded at 4weeks after transplanting and 150 kgNPK/ha on the unweeded plots did not differ among themselves. However, stem diameter recorded at 75 kgNPK/ha on plots weeded at 6weeks after transplanting was significantly higher than all other treatment combinations.

**Table 4. Effect of NPK fertilizer and weeding regime on stem diameter (cm).**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4weeks | 2.24 | 2.88 | 3.24 | 2.79 |
| 6weeks | 2.53 | 3.33 | 3.09 | 2.98 |
| Weed - free | 2.87 | 3.26 | 2.91 | 3.01 |

| | | | | |
|---|---|---|---|---|
| Unweeded | 2.06 | 2.65 | 3.30 | 2.67 |
| Mean | 2.43 | 3.03 | 3.14 | |

F- LSD (P= 0.05)
NPK fertilizer rate = 0.29
Weeding regime = 0.25
Fertilizer x weeding regime = 0.12

The effect of NPK fertilizer rates on the number of days to 50% anthesis was non – significant at P = 0.05 (Table 5). However, number of days to 50% anthesis was longest at 0 kgNPK/ha and shortest at 75kgNPK/ha.Plants weeded at 4weeks after transplanting had the earliest bud break while the longest days to 50% anthesis was obtained on the weed – free plots.

Fertilizer x weeding regime interaction on the number of days to 50% anthesis was non-significant. Although, number of days to 50% anthesis was longest at 150 kgNPK/ha on the weed – free plots and shortest at 150kgNPK/ha on plots weeded at 4weeks after transplanting.

**Table 5. Effect of NPK fertilizer and weeding regime on the number of days to 50% anthesis.**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4weeks | 35.06 | 28.89 | 27.61 | 30.52 |
| 6weeks | 32.22 | 35.33 | 29.89 | 32.48 |
| Weed – free | 33.39 | 29.61 | 41.34 | 34.78 |
| Unweeded | 38.56 | 30.52 | 29.06 | 32.71 |
| Mean | 34.81 | 31.09 | 31.98 | |

F- LSD (P = 0.05)
NPK fertilizer rate = NS
Weeding regime = NS
Fertilizer x weeding regime = NS

Fertilizer rates and weeding regime had significant (P = 0.05) effect on the number of fruits produced (Table 6). The number of fruits increased as the fertilizer rates increased from 0 kgNPK/ha to 150 kgNPK/ha. The highest number of fruits was recorded at 150 kgNPK/ha while the lowest was at 0 kgNPK/ha and they differed significantly. Number of fruits obtained at 75 kgNPK/ha and 150 kgNPK/ha were statistically similar.

The effect of weeding regime on the number of fruits produced showed that the number of fruits was highest on the weed – free plots while the least number of fruits was recorded on the unweeded plots and they differed significantly. Number of fruits obtained on the weed – free was significantly higher than that recorded on plots weeded at 6weeks after transplanting. However, number of fruits obtained on the weed –free plots and those recorded on plots weeded at 4weeks after transplanting did not differ among themselves.

Fertilizer x weeding regime interaction was non – significant. Although, number of fruits was highest at 150 kgNPK/ha on the weed – free plots while the lowest number of fruits was recorded at 0 kgNPK/ha on the unweeded plots.

**Table 6. Effect of NPK fertilizer on the number of fruits produced.**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4weeks | 22.75 | 30.75 | 42.78 | 32.09 |
| 6weeks | 22.21 | 38.61 | 26.60 | 29.14 |
| Weed – free | 26.91 | 41.12 | 43.04 | 37.02 |
| Unweeded | 17.95 | 21.48 | 24.91 | 21.45 |

| | | | |
|---|---|---|---|
| Mean | 22.46 | 32.99 | 34.33 |

F- LSD (P = 0.05)
NPK fertilizer rate = 9.25
Weeding regime = 7.55
Fertilizer x weeding regime = NS

The effect of fertilizer rates and weeding regime on the weight of fruits was significant (P = 0.05) (Table 7). Weight of fruits was highest at 150 kgNPK/ha and lowest at 0 kgNPK/ha and they differed significantly. Weight of fruits increased as the fertilizer rates increased from 0 kgNPK/ha to 150 kgNPK/ha. Weight of fruits produced at 75 kgNPK/ha and 150 kgNPK/ha were statistically similar.

The highest weight of fruits was recorded on plots weeded at 4weeks after transplanting while the least weight of fruits was obtained on the unweeded plots and they differed significantly. Weight of fruits obtained at 4weeks, 6weeks after transplanting and the weed – free plots did not differ among themselves.

Fertilizer x weeding regime interaction was non – significant. Although the highest weight of fruits was obtained at 150 kgNPK/ha on the weed – free plots while the least was at 0 kgNPK/ha on the unweeded plots.

**Table 7. Effect of NPK fertilizer on the weight of fruits (kg)**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4weeks | 22.50 | 35.40 | 37.72 | 31.87 |
| 6weeks | 20.60 | 36.52 | 27.52 | 28.21 |
| Weed – free | 18.96 | 33.94 | 38.52 | 30.47 |
| Unweeded | 15.15 | 19.99 | 25.96 | 20.37 |
| Mean | 19.30 | 31.46 | 32.43 | |

F – LSD (P = 0.05)
NPK fertilizer rate = 8.34
Weeding regime = 6.80
NPK fertilizer x weeding regime = NS

Fertilizer rates had no significant effect on weed biomass at P = 0.05 (Table 8). However, weight of weeds was highest where NPK fertilizer was omitted (0 kgNPK/ha) while weed biomass was least at 75 kgNPK/ha. Weeding regime had significant (P= 0.05) effect on the weight of weeds. The highest weight of weeds was recorded on the unweeded plots while the least was on plots weeded at 4weeks after transplanting and they differed significantly. Weight of weeds obtained on the unweeded plots was significantly higher than weight of weeds recorded on plots weeded at 6weeks after transplanting and the weed – free plots. Fertilizer x weeding regime interaction was non – significant. However, weed biomass was highest at 0 kgNPK/ha on the unweeded plots and least at 150 kgNPK/ha on plots weeded at 4weeks after transplanting.

**Table 8. Effect of NPK fertilizer on weed biomass (kg/ha).**

| | NPK fertilizer (kg/ha) | | | |
|---|---|---|---|---|
| Weeding regime | 0 | 75 | 150 | Mean |
| 4weeks | 0.58 | 0.50 | 0.50 | 0.53 |
| 6weeks | 2.28 | 4.83 | 2.38 | 3.16 |

| | | | | |
|---|---|---|---|---|
| Weed – free | 0.92 | 0.63 | 0.73 | 0.76 |
| Unweeded | 8.17 | 0.97 | 7.25 | 5.46 |
| Mean | 2.99 | 1.73 | 2.72 | |

F – LSD (P = 0.05)
NPK fertilizer rate = NS
Weeding regime = 0.83
NPK fertilizer x weeding regime = NS

**DISCUSSION**

Plant height and stem diameter increased as the fertilizer rates increased from 0kgNPK/ha to150 kgNPK/ha. The tallest and widest plants was obtained at 150 kgNPK/ha. This is in conformity with the result obtained by Law – Ogbomo and Egharevba (2009) who reported that as the NPK fertilizer rates increased from 0 kgNPK/ha to 400 kgNPK/haon two tomato cultivars(RomaVF3900 and RomaVF5- 80- 285), plant height, days to 50% flowering, fruit yield and percentage marketable yield increased. The earliest bud break was recorded at 75 kgNPK/ha.

The highest number of leaves, number of branches,stem diameter and the longest number of days to 50% anthesis (flowering) was recorded on plants on the weed – free plots. This may suggest that there was little or no competition between the plants and the weeds for light, waster and mineral nutrients. Iremiren (1988) reported that enhanced okra growth in the weeded plots may have been due to reduced weed competition, increased oxygenation and water movement in the soil as a result of the hoeing of the plots. The unweeded plots consistently produced the least vegetative parameters except in the number of days to 50% anthesis. This is in agreement with the observation made by Iremiren (1988) who reported that the growth and development of okra was severely checked in the unweeded control plots. Rao (2000) noted that weeds remove plant nutrients more efficiently than crops. When weeds are left undisturbed, some weeds can grow faster and taller than crops and inhibit tillering and branching. They can curtail sunlight and adversely affect photosynthesis and plant productivity. He concluded that generally, an increase in one kilogram of weed growth corresponds to a reduction in one kilogram of crop growth.

The highest number and weight of fruits was obtained at 150 kgNPK/ha while the least was at 0 kgNPK/ha. This is similar to the report by Hochmuth *et al.* (1991) that the yield of eggplant increased as the fertilizer rates increased from 0 kgNPK/ha to 336.24 kgNPK/ha. Hochmuth *et al.* (1992) and Hochmuth et al (1993) also reported that early marketable yield of eggplant increased linearly as the fertilizer rates increased from 0 to 55.04 kgK/ha.The least number of fruits obtained where NPKfertilizer was omitted (0 kgNPK/ha) may be due to the poor vegetative growth observed at 0 kgNPK/ha.

The highest number of fruits was obtained on plants on the weed – free plots. This may suggest that the plants on the weed – free plots where the highest numder of leaves, branches and stem diameter was recorded had a wider surface for photosynthesis and subsequent accumulation of photosynthates which enhanced the production of more fruits and more points points of attachment for the fruits. The least number and weight of fruits was obtained on the unweeded plots.This may be attributed to competition for light, water and mineral nutrients between the weeds and the crops. Iremiren (1988) reported that weed removal within 12 weeks of sowing generally resulted in significantly better crop growth and yield than those in the weedy check. Wilcut *et al* (1994) observed that weeds reduce crop yield and quality by competing with crops for light, water and mineral nutrients. Eshel and Ratan(1972), Adigun *et al.* (1983) and Braveman (1996) noted that in Nigeria, uncontrolled weeds caused yied reductions ranging from 53 to 95% in pepper and 42 to 54% in rice. Anil (2000) suggested that it may be necessary to control weeds for the entire growing season to prevent yield losses. The number and weight of fruits was highest at 150kgNPK/ha on the weed – free plots.

Weed biomass was highest at 0kgNPK/ha and least at 75kgNPK/ha. The weight of weeds was highest in the unweeded plots and least on plots weeded at 4weeks after transplanting. The unweeded control which produced the highest weed biomass gave least values in all the vegetative and yield parameters except in the number of days to 50% anthesis.

**CONCLUSION**

The result of the field trial showed that in Abakaliki, 150kgNPK/ha applied on plots that were kept weed – free produced the highest yield of eggplant. Although,the highest yield was recorded at 150kgNPK/ha, the yield obtained at 75kgNPK/ha was comparable to 150kgNPK/ha.

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