EFFECT OF FERTILIZER APPLICATION ON FALL ARMYWORM (*Spodoptera frugiperda* J. E. SMITH) INFESTATION ON MAIZE IN BENIN CITY, EDO STATE.

BY

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FACULTY OF AGRICULTURE
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BENIN CITY.

NOVEMBER, 2025

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A PROJECT REPORT SUBMITTED TO THE DEPARTMENT OF CROP SCIENCE, FACULTY OF AGRICULTURE, UNIVERSITY OF BENIN, BENIN CITY. IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELOR OF AGRICULTURE (B. Agric) DEGREE (CROP SCIENCE).

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CERTIFICATION

This is to certify that this project titled “EFFECT OF FERTILIZER APPLICATION ON FALL ARMYWORM (*Spodoptera frugiperda* J. E. SMITH) INFESTATION ON MAIZE” was carried out by Ogaga MONDAY USEOREBRE (Miss) with matriculation number AGR1900205 of the Department of Crop Science, Faculty of Agriculture, University of Benin, Benin City.

Dr. Mrs. M. E Omoregie **Date**

Project supervisor

Prof. S.U. Ewansiha **Date**

(Head of Department)

DEDICATION

This report is dedicated to God Almighty who through his unending love and mercies for me made the completion of this project a reality.

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ABSTRACT

Fertilizer application influences plant health and susceptibility to pests. Optimal levels of nitrogen, phosphorus, and potassium foster robust plant growth, which can deter pests and mitigate yield losses. Therefore, this research aimed to examine the impact of fertilizer application on Fall armyworm (FAW) infestation in maize. The study was conducted during the late maize cropping season of 2023 at the teaching and research farm of the Department of Crop Science, Faculty of Agriculture, University of Benin. The experiment was fitted in a Randomized Complete Block Design (RCBD) with three treatments viz: no fertilizer (T1), inorganic fertilizer (T2), and organic fertilizer (T3), each replicated three times. Treatment plots measured 3x2m and spaced by 1m. The data were analysed using one-way analysis of variance (ANOVA). The results revealed no significant differences ($p > 0.05$) in FAW abundance, damage, or severity among the treatments at 3WAS, 4WAS, 5WAS, 6WAS, and 7WAS. However, the highest mean abundance at 3WAS was recorded in the organic treatment (4.25), while at 4WAS, 5WAS, and 7WAS, the highest mean abundances were observed in the organic treatment (3.26, 4.93, and 3.95, respectively). In terms of damage, the highest mean damaged plants were recorded in the organic treatment at 3WAS (1.93) and 5WAS (3.30). Similarly, the highest mean severity was observed in the organic treatment at 3WAS (3.99), 5WAS (6.36), and 6WAS (5.85). In conclusion, both organic and inorganic fertilizers tested did not influence FAW larval abundance, damage, or severity on maize.

CHAPTER ONE

INTRODUCTION

Maize (*Zea mays*), commonly referred to as corn, stands as an extraordinary and indispensable cereal crop that plays a pivotal role in various facets of human existence. It holds a rich history dating back to its domestication around 10,000 years ago by indigenous communities in southern Mexico, signifying its long-standing significance. Since then, maize has traversed borders and emerged as the third most vital cereal crop globally, following rice and wheat (FAOSTAT, 2021). Notably, the United States leads in maize production, trailed by China and Brazil, as per data from the USDA in 2021. This widespread cultivation underscores maize's importance across diverse geographical regions.

In sub-Saharan Africa (SSA), maize emerges as a crop of paramount importance, particularly concerning food security. Countries like Nigeria heavily rely on maize cultivation, with over 6.5 million hectares of land dedicated to its growth across diverse agroecological zones (Onumah *et al*., 2021; PricewaterhouseCoopers, 2021; FAOSTAT, 2022). As the most consumed staple food in Nigeria, maize finds extensive usage in human consumption, animal feed, pharmaceuticals, and various industries. Approximately 80 percent of maize grain is allocated for human and animal consumption, while the remaining 20 percent fuels industrial processes for diverse product development (Onumah *et al*., 2021). This underscores maize's multifaceted role in sustaining livelihoods and driving economic activities within the region.

Despite its significance, maize production faces numerous challenges. These constraints include limited access to credit, exacerbated by bureaucratic processes, as well as the adverse impacts of climate change, such as erratic rainfall patterns (Onumah *et al*., 2021) and insect pests infestation.

In West Africa, maize assumes a critical role in agricultural systems and dietary practices, particularly as it extends into savanna zones. However, maize production is hampered by various factors, with insect pests' infestation. Lepidopterous pests, including stem and ear borers, armyworms, cutworms, and grain moths, rank among the most damaging insects globally (FAO, 2021). These pests can decimate maize crops if left unchecked, highlighting the importance of pest management strategies.

The fall armyworm (*Spodoptera frugiperda*) is a significant agricultural pest with a wide host range, capable of causing substantial damage to crops worldwide. Its economic impact, rapid spread, and ability to develop resistance to pesticides pose significant challenges to crop management strategies.

The fall armyworm has a broad host range, including maize, rice, sorghum, cotton, and several vegetable crops (Nagoshi *et al*., 2021). Its voracious feeding habits can lead to severe yield losses, with estimates ranging from 20% to 100% depending on crop type, environmental conditions, and pest population dynamics (Dale *et al*., 2017). Economic losses due to fall armyworm infestations are particularly devastating for smallholder farmers in developing countries, where the pest's presence exacerbates food insecurity and undermines livelihoods.

Understanding the lifecycle and biology of the fall armyworm is crucial for implementing effective control measures. The species exhibits a migratory behaviour, facilitated by its strong flying capabilities and reproductive potential (Harrison *et al*., 2019). Female moths lay eggs in clusters on the undersides of leaves, and the larvae undergo several instars before pupating in the soil. The rapid development and overlapping generations contribute to the pest's persistence and ability to establish in new regions.

The emergence of pesticide-resistant fall armyworm populations further complicates management efforts. Continuous exposure to chemical insecticides has led to the development of resistance mechanisms, including detoxification enzymes and target-site mutations (Zhang *et al*., 2020). This evolutionary arms race underscores the need for integrated pest management (IPM) strategies that incorporate cultural, biological, and chemical control methods (Farias *et al*., 2018).

Biological control agents offer sustainable alternatives to chemical pesticides for managing fall armyworm populations. Various natural enemies, including parasitoids, predators, and pathogens, play a crucial role in regulating pest populations in agroecosystems (Mugerwa *et al*., 2020). For instance, the larval parasitoid Cotesia marginiventris has shown promise as a biological control agent against fall armyworm larvae in maize fields (Colares *et al*., 2019). Additionally, entomopathogenic fungi such as Beauveria bassiana and Metarhizium anisopliae have demonstrated efficacy in suppressing pest populations under field conditions (Dara, 2020).

Advances in genetic technologies offer innovative solutions for managing fall armyworm infestations. RNA interference (RNAi) technology, for example, enables the silencing of essential genes in the pest's genome, leading to mortality or reduced fitness (Kumar *et al*., 2021). RNAi-based approaches targeting key physiological processes such as digestion, development, and behaviour hold promise for controlling fall armyworm populations while minimizing environmental risks associated with chemical pesticides.

Effective pest management practices, coupled with proper fertilizer application and other agronomic interventions, are essential for mitigating the impact of insect pests and enhancing maize productivity in West Africa.

Fertilizer application significantly influences plant health and susceptibility to pests. Research indicates that balanced fertilization enhances plant vigour and resilience against armyworm infestations. Optimal levels of nitrogen, phosphorus, and potassium foster robust plant growth, which can deter pests and mitigate yield losses. Nevertheless, the timing and dosage of fertilizer application must be carefully managed to prevent creating favourable conditions for armyworm outbreaks.

Particularly in West Africa, where soil nutrient deficiencies prevail, integrated soil fertility management (ISFM) practices are recommended. ISFM emphasizes the combined utilization of organic and inorganic fertilizers tailored to local soil conditions (Vanlauwe *et al*., 2019). By enhancing soil fertility and crop nutrition, ISFM not only enhances maize productivity but also bolsters plants' resilience to withstand pest pressures, including fall armyworm infestations.

1.2 JUSTIFICATION

Fertilizer application is recognized for its role in augmenting crop yield through promoting robust plant growth and development. Nevertheless, the interplay between fertilizer usage and pest infestation is intricate. Delving into how various fertilization methods impact the occurrence and severity of fall armyworm infestations offers valuable insights for optimizing yield while mitigating pest-related losses. This investigation harmonizes with the tenets of Integrated Pest Management (IPM), which strive to curtail reliance on chemical pesticides by amalgamating cultural, biological, and chemical control strategies.

Maize is an important staple food crop grown in Edo state, Nigeria. The Fall armyworm infestations have posed to be a major challenge to maize production in the state.

Despite some existing research on the relationship between fertilization and pest presence in maize, there remains a paucity of locale-specific information pertinent to Benin City's conditions. Therefore, this study was carried out to bridge the gap.

1.3 MAIN OBJECTIVE

The main objective of this study is to investigate the effect of fertilizer application on fall army worm infestation on maize.

1.4 SPECIFIC OBJECTIVE

The specific objectives were to determine:

1. The effect of organic and inorganic fertilizer application on fall army worm larval abundance, and.
2. The effect of organic and inorganic fertilizer application on damage and severity by fall army worm.

CHAPTER TWO

LITERATURE REVIEW

2.1 EFFECT OF ORGANIC AND INORGANIC FERTILIZER ON FALL ARMYWORM LARVA ABUNDANCE

The fall armyworm (*Spodoptera frugiperda*) is a notorious pest that poses a significant threat to crop production globally, particularly in maize cultivation. It has the ability to cause extensive damage to crops, leading to substantial economic losses. In efforts to mitigate the damage caused by fall armyworm infestations, various agricultural practices, including the application of fertilizers, have been explored. Both organic and inorganic fertilizers are commonly used in agriculture, and their effects on pest populations, including fall armyworm larvae, have been the subject of considerable research.

Organic fertilizers are derived from natural sources and contain organic matter that improves soil structure and fertility. Several studies have investigated the impact of organic fertilizers on fall armyworm populations. A result of the field experiments conducted to evaluate the efficacy of different organic fertilizers on maize crop and pest populations, including fall armyworm larvae showed that the application of organic fertilizers, such as compost and vermicompost, led to a reduction in fall armyworm larva abundance compared to conventional chemical fertilizers. This reduction in larval abundance could be attributed to the indirect effects of organic fertilizers on soil microbial communities, which may influence the behaviour and survival of fall armyworm larvae (Birkhofer *et al*., 2018).

Furthermore, organic fertilizers promote soil health and enhance the activity of natural enemies of fall armyworm, such as predatory insects and parasitoids (Zehnder *et al*., 2007). These natural enemies play a crucial role in regulating pest populations and can help suppress fall armyworm outbreaks in agricultural fields. Therefore, the use of organic fertilizers may contribute to integrated pest management strategies aimed at controlling fall armyworm infestations sustainably.

Inorganic fertilizers, such as nitrogen, phosphorus, and potassium fertilizers, are commonly used in modern agriculture to supply essential nutrients to crops. While inorganic fertilizers can improve crop yield, their impact on fall armyworm larva abundance is less clear-cut. Some studies have suggested that excessive nitrogen fertilization may exacerbate fall armyworm infestations by promoting rapid crop growth, which can attract egg-laying moths and provide abundant food resources for developing larvae (Meissle *et al*., 2010). In contrast, other research has found no significant effect of inorganic fertilizers on fall armyworm populations.

The influence of inorganic fertilizers on fall armyworm abundance may depend on various factors, including fertilizer type, application rate, and timing. For instance, excessive nitrogen fertilization during the vegetative stage of maize growth may increase the susceptibility of plants to fall armyworm damage, whereas balanced nutrient management practices that optimize plant health and resilience could help mitigate pest pressure. Additionally, the interaction between inorganic fertilizers and other agronomic practices, such as crop rotation and tillage, can influence fall armyworm population dynamics and should be considered in pest management strategies.

Integrated pest management (IPM) approaches that combine cultural, biological, and chemical control methods offer a holistic approach to managing fall armyworm infestations while minimizing environmental impacts. Both organic and inorganic fertilizers can be integrated into IPM programs to enhance crop productivity and suppress pest populations effectively. For example, the judicious use of organic amendments, such as biofertilizers and compost teas, can improve soil health and stimulate the activity of beneficial microorganisms that antagonize fall armyworm larvae (Gurr *et al*., 2017).

Similarly, targeted applications of inorganic fertilizers based on soil nutrient deficiencies and crop requirements can optimize plant nutrition and minimize the risk of pest outbreaks. By integrating fertilizer management with other pest control measures, such as crop rotation, intercropping, and habitat manipulation, farmers can reduce their reliance on chemical pesticides and promote sustainable pest management practices (Gurr *et al*., 2016). Moreover, research into novel fertilization strategies, such as fertigation and foliar feeding, holds promise for enhancing nutrient uptake efficiency and reducing nutrient losses to the environment, thereby contributing to both crop productivity and pest suppression (Lebidi *et al*., 2020).

2.2 EFFECT OF ORGANIC AND INORGANIC FERTILIZER APPLICATION ON DAMAGE AND SEVERITY OF FALL ARMYWORM

Organic fertilizers, derived from natural sources such as compost, manure, and plant residues, play a vital role in enhancing soil fertility and improving crop growth. Several studies have investigated the relationship between organic fertilizer application and fall armyworm damage. For example, Adeyemi *et al*., (2019) found that the incorporation of poultry manure into the soil resulted in reduced FAW damage on maize plants compared to untreated controls. Similarly, Midega *et al*., (2018) reported lower FAW infestation levels in maize fields treated with organic amendments like farmyard manure.

These findings suggest that organic fertilizers may have a deterrent effect on fall armyworm, possibly through alterations in plant physiology or changes in the soil microbial community, which influence pest behaviour and development. However, the efficacy of organic fertilizers in managing FAW damage may vary depending on factors such as application rate, timing, and crop variety (Gouws *et al*., 2020).

Inorganic fertilizers, including nitrogen (N), phosphorus (P), and potassium (K) fertilizers, are commonly used to supply essential nutrients to crops and optimize yield. While their primary role is to enhance plant growth and productivity, the impact of inorganic fertilizers on pest infestations, including fall armyworm, has been a subject of interest among researchers.

Several studies have examined the influence of nitrogen fertilization on FAW damage. For instance, Nagoshi *et al*., (2017) observed that nitrogen-fertilized maize plants were more attractive to fall armyworm moths for oviposition compared to unfertilized plants. Additionally, Zhang *et al*., (2020) found a positive correlation between nitrogen application rates and FAW larval survival and development.

The relationship between phosphorus and potassium fertilization and FAW severity is less studied compared to nitrogen. However, some evidence suggests that phosphorus availability in soil may indirectly affect FAW infestation by influencing plant resistance mechanisms or altering plant nutritional quality (Meissle *et al*., 2019). Further research is needed to elucidate the specific mechanisms underlying the interaction between phosphorus, potassium fertilizers, and fall armyworm dynamics.

Understanding the combined effects of organic and inorganic fertilizers on fall armyworm damage is essential for developing integrated pest management strategies. While organic fertilizers contribute to soil health and may indirectly influence pest populations, their interactions with inorganic fertilizers can modulate these effects.

A study by Ariza *et al*., (2021) demonstrated that the combined application of organic and inorganic fertilizers resulted in improved maize growth and yield compared to sole applications. However, the impact on fall armyworm damage was not explicitly investigated in this study. Future research should explore how different combinations and ratios of organic and inorganic fertilizers affect FAW infestation levels and crop susceptibility.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Experimental site

This study was conducted in the teaching and research farm of the department of crop science Faculty of Agriculture at the University of Benin, located in the Ovia North East Local Government Area of Edo State, Nigeria. The field is positioned at latitude 6.40’15” N and longitude 5.62’42’’ E.

3.2 Sources of Experimental materials

The cultivar used was Oba 98 (matures in 100-110 days, resistant to rust, blight, streak). The seed was obtained from PREMIER SEED Nigeria limited.

3.3 Treatments

For this experiment three treatment was used. They are:

T1 - No Fertilizer

T2 - Inorganic Fertilizer

T3 - Organic Fertilizer

3.4 Experimental design

This experiment was laid out in a Randomized complete block design (RCBD) replicated three times, each treatment plot measures 3m x 2m and was separated by 1m.

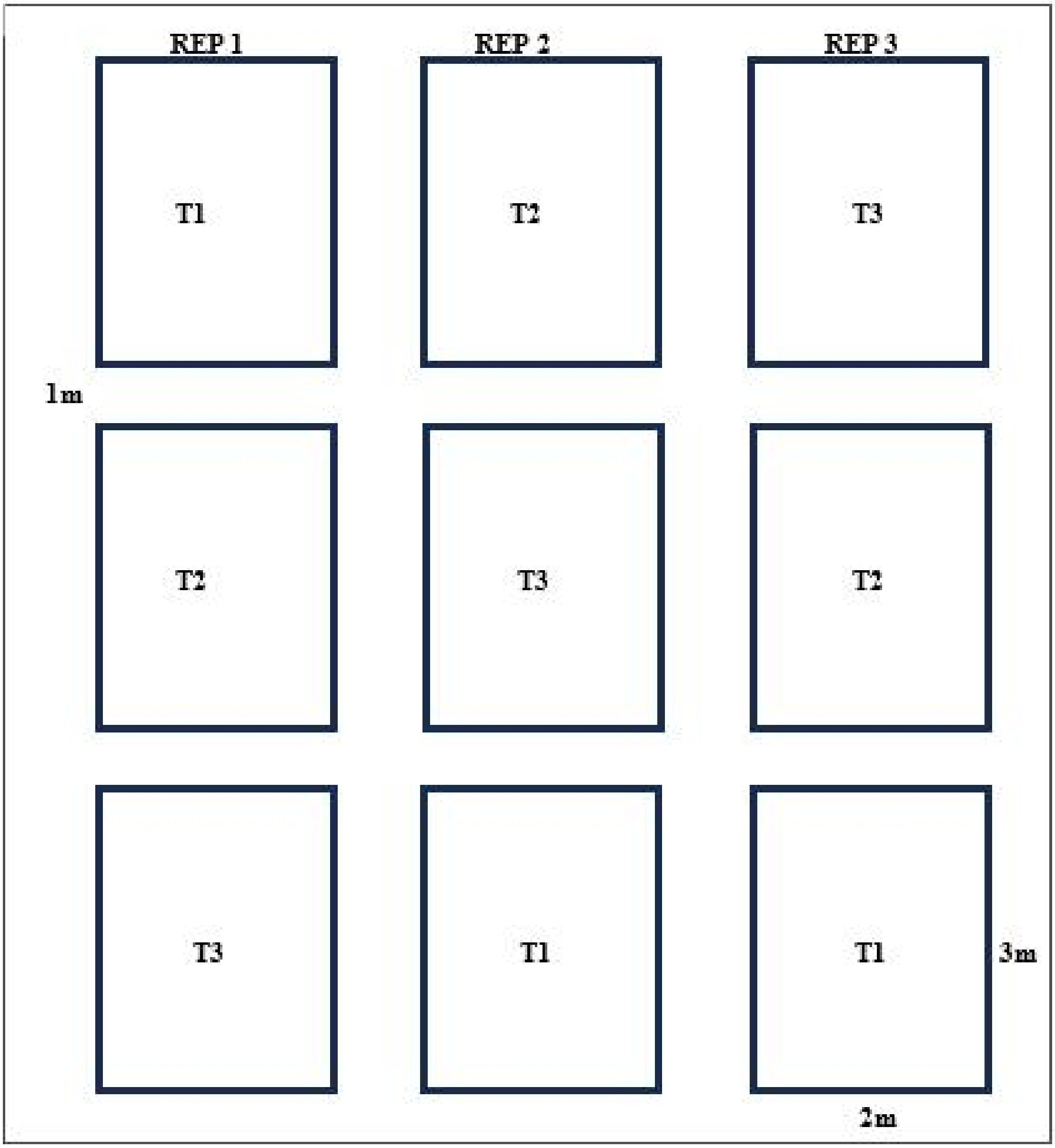

Fig 1: Layout of experiment

3.5 Cultural practice

3.5.1 Site preparation

The field was cleared manually using a cutlass. The debris were removed from the field, a black polythene was built (as a fence) around the field and mapping was done.

3.5.2 Sowing

The plant spacing used was 75cm x 25cm and three seeds were sown per stand at 3-4cm deep in a moist soil. The seedlings were thinned to one plant per stand at two weeks after sowing.

3.5.3 Fertilizer application

For plot with treatment T2 N.P.K 15:15:15 was applied two weeks after sowing at the rate of 300g per treatment plot and at six weeks urea was applied at the rate of 45g per treatment plot. For plot with treatment T3 cured Poultry Manure was applied twice (at two and six weeks after sowing) at the rate of 60kg per treatment plot.

3.5.4 Weeding

Weeding was done manually by hand hoeing twice at two weeks and at fifth weeks after sowing.

3.6 Sampling and Data Collection

Sampling began two (2) weeks after sowing and ended eight (8) weeks after sowing, it was done every seven (7) days during the early hours of the day between 7-10am. In each treatment plot random number was used to select five (5) maize plant and each of the maize plant were examined and recorded. Data was collected on the number of leaves, stage of plant, number of larvae, presence of frass, damage score (was recorded using "visual rating scale for leaf damage assessment by Davis Williams'').

Table 3.1: Visual rating scale for leaf damage assessment by Davis and Williams

Scale	Description
0	No visible leaf damage
1	Only pin hole damage on leaves
2	Pin hole and short hole damage
3	Small elongated lesion (5-10mm) on one to three leaves
4	Mid-size lesion (10-30mm) on four to seven leaves
5	Large-elongated lesion (>30mm) or small portion eaten on 3 leaves
6	Elongated lesion (>30mm) or large portions eaten on 3 leaves
7	Elongated lesion (>30mm) and 50% of leaf eaten
8	Elongated lesion (30mm) and large portions eaten or 70% of leaves eaten
9	Most leaves with long lesion and complete defoliation observed.

3.7 Data Analysis

Data on the larva abundance, damage and severity in the treatments were square-root transformed and analyzed using one-way Analysis of Variance (ANOVA). All analysis was done using Genstat version 12.1.

CHAPTER FOUR

RESULTS

4.1 EFFECT OF ORGANIC AND INORGANIC FERTILIZER APPLICATION ON FALL ARMYWORM LARVA ABUNDANCE

The mean abundance of FAW larva on maize influenced by organic and inorganic fertilizer application at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS is presented in table 4.1.

Table 4.1 presents the mean abundance of FAW larva on maize influenced by organic and inorganic fertilizer application at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS under different treatment. There were no significant differences ($p > 0.05$) in the abundance between the treatment at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS. However, at 3WAS, the highest mean abundance (4.25) was recorded in organic. At 4WAS, the highest mean abundance (3.26) was recorded in inorganic. At 5WAS, the highest mean abundance (4.93) was recorded in organic. At 6WAS, the highest mean abundance (3.36) was recorded in inorganic. At 7WAS, the highest mean abundance (3.95) was recorded in inorganic.

Table 4.1: Mean number of FAW larvae on maize as influenced by organic and inorganic fertilizer application

Treatment	3WAS	4WAS	5WAS	6WAS	7WAS
Inorganic Fertilizer	3.03 (1.88)	3.26 (1.94)	3.11 (1.90)	3.26 (1.94)	3.95 (2.11)
No Fertilizer	1.06 (1.25)	1.55 (1.43)	2.96 (1.86)	0.71 (1.10)	1.30 (1.34)
Organic Fertilizer	4.25 (2.18)	3.22 (1.93)	4.93 (2.33)	2.53 (1.74)	3.23 (1.94)
LSD	1.54	0.97	0.99	1.30	0.62
Significance	Ns	ns	ns	ns	ns

LSD: Least significant difference

Ns: Not significant at $p > 0.05$

The means in the bracket are square root transformed

4.2 EFFECT OF ORGANIC AND INORGANIC FERTILIZER APPLICATION ON DAMAGE AND SEVERITY BY FALL ARMYWORM

The mean on damage and severity by FAW larva on maize influenced by organic and inorganic fertilizer application at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS is presented in tables 4.2a and b.

Table 4.2a and b presents the mean damaged plants and severity by FAW on maize influenced by organic and inorganic fertilizer application at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS under different treatment respectively. There were no significant differences ($p > 0.05$) in the damage and severity between the treatment at 3WAS, 4WAS, 5WAS, 6WAS and 7WAS. However, at 3WAS, the highest mean damaged plants (1.93) were recorded in organic. At 4WAS, the highest mean damaged plants (2.63) were recorded in inorganic and organic. At 5WAS, the highest mean damaged plants (3.30) were recorded in organic. At 6WAS, the highest mean damaged plants (3.30) were recorded in inorganic. At 7WAS, the highest mean damaged plants (3.30) were recorded in inorganic. Whereas, at 3WAS, the highest mean severity (3.99) was recorded in organic. At 4WAS, the highest mean severity (4.56) was recorded in inorganic. At 5WAS, the highest mean severity (6.36) was recorded in organic. At 6WAS, the highest mean severity (5.85) was recorded in organic. At 7WAS, the highest mean severity (6.16) was recorded in organic.

Table 4.2a: Mean number of damaged plants affected by FAW on maize as influenced by organic and inorganic fertilizer application

Treatment	3WAS	4WAS	5WAS	6WAS	7WAS
Inorganic Fertilizer	1.81 (1.52)	2.63 (1.77)	2.96 (1.86)	3.30 (1.95)	3.30 (1.95)
No Fertilizer	1.57 (1.44)	1.32 (1.35)	2.96 (1.86)	0.71 (1.10)	1.93 (1.56)
Organic Fertilizer	1.93 (1.56)	2.63 (1.77)	3.30 (1.95)	2.26 (1.66)	2.63 (1.77)
LSD	0.99	0.93	0.58	1.23	0.56
Significance	ns	Ns	ns	ns	ns

LSD: Least significant difference

Ns: Not significant at $p > 0.05$

The means in the bracket are square root transformed

Table 4.2b: Mean number severity of damage by FAW on maize as influenced by organic and inorganic fertilizer application

Treatment	3WAS	4WAS	5WAS	6WAS	7WAS
Inorganic Fertilizer	3.74 (2.06)	4.56 (2.25)	6.26 (2.60)	4.74 (2.29)	4.17 (2.16)
No Fertilizer	1.84 (1.56)	2.22 (1.65)	4.04 (2.13)	1.19 (1.30)	3.42 (1.98)
Organic Fertilizer	3.99 (2.14)	4.38 (2.21)	6.36 (2.62)	5.85 (2.52)	6.16 (2.58)
LSD	1.15	1.38	0.96	1.52	0.88
Significance	ns	Ns	ns	ns	ns

LSD: Least significant difference

Ns: Not significant at $p > 0.05$

The means in the bracket are square root transformed

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Effect of organic and inorganic fertilizer application on fall armyworm larva abundance

This study aimed to investigate the effect of fertilizer application on fall armyworm (FAW) infestation in maize during the late cropping season of 2023 in Benin City, Edo State. Fall armyworm is recognized as one of the most destructive pests affecting maize in Sub-Saharan Africa. The results of the study indicated that neither organic nor inorganic fertilizer application significantly influenced FAW larvae abundance. This finding contradicts previous research conducted by Meissle et al. (2019) and Zehnder et al. (2007), who suggested that nitrogen fertilization might increase fall armyworm infestation. Additionally, they noted that organic fertilization could enhance the activities of natural enemies of FAW, potentially reducing FAW populations.

5.2 Effect of organic and inorganic fertilizer application on damage and severity by fall armyworm

In this study on the application of inorganic and organic fertilizer application there was mid-size lesion on leaves at 3WAS, it was from mid-size to large elongation lesion on leaves at 4WAS. At 5WAS there were elongated lesion on leaves. At 6WAS there was large elongated lesions. At 7WAS there was elongated to large elongated lesions. The severity was highly reduced where no fertilizer was applied. The result showed similar effect of organic and inorganic fertilizer application on damage and severity as there were no significant difference among the treatment. However, numerically organic and inorganic fertilizer application incurred the highest damage (3.30). Contrary to this Adeyemi *et al.* (2019) reported that the incorporation of poultry manure into the soil resulted in reduced FAW damage on maize.

5.3 CONCLUSION

This study is to investigate the effect of fertilizer application on fall armyworm infestation on maize. There was a moderate FAW larva infestation and the damage increased in severity as the weeks progress. This was similar for the various treatment. As organic and inorganic fertilizer tested in the study did not affect the larva abundance, damage and severity of FAW on maize. The various organic and inorganic has no potential for FAW control.

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