Review Form 3

Journal Name:	**Asian Journal of Research in Crop Science**
Manuscript Number:	**Ms_AJRCS_125320**
Title of the Manuscript:	**GROWTH AND YIELD OF LETTUCE (Lactuca sativa L.) IN RESPONSE TO ORGANIC FERTILIZER TYPES IN MAKURDI, NIGERIA**
Type of the Article	**Original Research Article**

Review Form 3

PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**Author's Feedback** *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	Using manures in farming contribute to the growth of healthier crops including the variety of lettuce in this study. In addition, it increases soil fertility and improve the soil structure. Moreover, it does not only decrease the waste but also promote sustainable farming.	
Is the title of the article suitable? **(If not please suggest an alternative title)**	The manuscript is a two-factor study, variety of lettuce applied with various organic fertilizer. Here is my suggestion for the title of this manuscript: "VARIETY OF LETTUCE' (*LACTUCA SATIVA* L.) GROWTH AND YIELD IN RESPONSE TO VARIOUS ORGANIC FERTILIZERS IN MAKURDI, NIGERIA"	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The following are my suggestion to be included in the abstract: 1. Objective must be included or answered. 2. Words in red fonts should be included in the abstract. 3. Interaction between factor A and B should be indicated. ABSTRACT This study was conducted in 2023 at the nursery of the Teaching and Research farm of the Department of Crop production of Joseph Sarwuan Tarka University Makurdi, Benue State, Nigeria. - Objective The experimental treatments were two (2) varieties of lettuce (Ice berg and Butter head) and three (3) organic manure sources (Poultry dropping, cow dung, goat manure) and a control. An experiment was set up as a 2 x 4 factorial design using a randomized complete block design (RCBD) with three replications. Data were collected from the following parameters; plant height, plant diameter, number of leaves, leaf area index (LAI), crop growth rate (CGR), root weight, and fresh weight. All the study parameters of lettuce were significantly ($P<0.05$) different on both organic manure, and variety. The iceberg variety surpassed the butterhead variety, with statistically significant ($P<0.05$) differences observed in several parameters: plant height (20.32 cm), number of leaves (23.86), leaf area index (15.19 cm^2), crop growth rate (3.54 g m^2 per day), chlorophyll content (23.32 mg/g), fresh weight (83.86 g), root weight (20.23 g), and yield (3.19 t/ha). Similarly, poultry droppings obtained significantly ($P<0.05$) better results in terms of plant height (21.73 cm), number of leaves (23.92), leaf area index (16.75 cm^2), crop growth rate (3.70 g m^2 per day), chlorophyll content (25.73 mg/g), fresh weight (682.02 g), root weight (22.13 g) and yield (3.75 t/ha) as compared to other organic manure sources such as cow dung, goat manure and control. In addition, a significant difference ($P<0.05$) was observed in the interaction between lettuce varieties selection and organic fertilizers at various levels, particularly with the high level of iceberg x poultry manure. *Keywords: Lettuce, Organic manure, variety, growth and yield*	
Are subsections and structure of the manuscript appropriate?	The following are observed: 1. Materials and Methods	

2.0 MATERIAL AND METHOD

2.1 Experimental Location

This study was carried out in 2023 at Joseph Sarwuan Tarka University Makurdi (JOSTUM), in Benue State, Nigeria, at the nursery sector of the Teaching and Research farm of the Department of Crop Production. Makurdi, a tropical area inside Nigeria's Southern Guinea Savannah Agro-Ecological zone, is situated at Lat. 7.410N and Long 8.280E, 97 meters above sea level.

2.2 Experimental Treatments and Design

The experiment was designed as a 2 x 4 factorial design, arranged within a Randomized Complete Block Design (RCBD) and replicated three times. The treatments were two (2) varieties of lettuce (Factor A by Iceberg and Butter-head) and four (4) organic manure types (Factor B by Poultry dropping, goat manure, Cow dung and a control) was used. All the organic manure are collected from animal kept under intensive care and was allowed to undergo partial decomposition for three months following the recommendation of Yusuf and Paul (2018) before it was used for the experiment.

2. Results and Discussion
   a. Words in red fonts should be included in the results and discussion.

3 RESULTS AND DISCUSSION

3.1 Vegetative Growth of Lettuce as influenced by variety and different organic fertilizer Application

The Iceberg lettuce variety significantly ($P<0.05$) impacted growth, with an average plant height of 20.32 cm, 23.86 leaves, a leaf area index of 15.19 cm^2, and a crop growth rate of 3.54 g/m^2 per day. In comparison, the Butter-head variety, which recorded significantly lower plant height (18.98 cm), number of leaves (20.87), leaf area index (14.23 cm^2), and crop growth rate (2.02 g/m^2 per day). The results in Table 1 showed that the Iceberg variety was superior in terms of growth metrics. Differences

Results and Discussion
   b. interaction effect should be indicated.
   c. Table 1 and 2 (words in red fonts should be included/considered

Table 1: Effect of variety and organic nutrient sources on the growth parameters of lettuce grown in Makurdi

	Plant Height (cm)	Number of Leaves	Leaf Area Index (LAI)	Crop Growth Rate (CGR)
Factor A. Varieties				
Ice berg	20.32 a	23.86 ?	15.19 ?	3.54 ?
Butter head	18.98 b	20.87 ?	14.23 ?	2.02 ?
LSD (0.05)	1.02	1.18	1.31	0.08
Factor B. Nutrient source				
Cattle Dung	17.28 ?	19.12 ?	12.00 ?	2.10 ?
Poultry Manure	21.73 ?	23.92 ?	16.75 ?	3.70 ?
Goat Manure	19.00 ?	20.91 ?	13.88 ?	2.90 ?
Control	15.01 ?	15.21 ?	10.75 ?	1.04 ?
LSD (0.05)	1.20	1.10	1.62	0.02
Interaction (A x B)	s or ns	----	----	----

Means within varieties and nutrient source column having the same letter do not differ significantly at P<0.05 level of significance using LSD.

Notes:
*- significant
ns – non- significant

3.2 Yield of Lettuce as influenced by variety and different organic fertilizer Application

According to table 2 or figure 1, the Butterhead variety recorded the lowest chlorophyll concentration (20.98 mg/g), while the Iceberg variety recorded the highest chlorophyll content (23.32 mg/g). This difference was statistically significant (P<0.05). Poultry dung dramatically increased the quantities of chlorophyll on organic nutrient sources, averaging an astonishing 25.73 mg/g; the control group produced the lowest amount, 18.01 mg/g. Other nutrient sources, such as goat dung and calf dung, had moderate chlorophyll contents of 20.28 mg/g and 22.00 mg/g, respectively, and there was a statistically significant difference between them. The comprehension of nitrogen management techniques for enhancing lettuce production in sustainable agriculture systems is enhanced by this discovery. Similar to this study, Chowdhury and Rahman [20] found that whereas local cultivars in the control plot had the lowest chlorophyll content, greater lettuce growth, yield, and nutrient accumulation were attained in the poultry manure treatment. The Iceberg variety outperformed Butterhead with an average root weight of 20.23g, and the difference between the two types was statistically significant as shown in Table 2 or Figure 2.

Regardless of the lettuce varieties, the types of organic fertilizers significantly (P<0.05) increased the results, with poultry manure leading to an increase in the parameter, including average root weight, which was an amazing 22.12g. The control group, on the other hand, had the lowest root weight

Review Form 3

	Table 2: Effect of variety and organic nutrient sources on the yield parameters of lettuce grown in Makurdi **Chlorophyll content (mg/g) / Fresh weight (g) / Root Weight (g) / Yield (t/ha)** **Factor A. Varieties** Ice berg: 23.32 a / 83.86 ? / 20.23 ? / 3.19 ? Butter head: 20.98 b / 70.87 ? / 18.65 ? / 2.63 ? LSD (0.05): 2.02 / 5.18 / 1.02 / 1.31 **Factor 2. Nutrient source** Cattle Dung: 20.28 ? / 68.12 ? / 18.32 ? / 2.00 ? Poultry Manure: 25.73 ? / 82.02 ? / 22.12 ? / 3.75 ? Goat Manure: 22.00 ? / 79.91 ? / 20.12 ? / 2.50 ? Control: 18.01 ? / 55.21 ? / 16.87 ? / 1.75 ? LSD (0.05): 1.20 / 3.10 / 1.54 / 1.22 Interaction (a x b): s or ns / ----- / ------ / ------ *Means within varieties and nutrient source column having the same letter do not differ significantly at P<0.05 level of significance using LSD.* *Notes:* *- significant ns – non- significant	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The manuscript is scientifically correct. However, the author should consider changing the title to emphasize the two factors of the study; improve the abstract by adding information as what was seen in my observation; and experimental design and treatments should be indicated. Furthermore, entries on the table should have indication of its significance or non-significance.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	References are sufficient.	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	No comment	
Optional/General comments	None	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

Name:	**Derby E. Poliquit**
Department, University & Country	**Northwest Samar State University, Philippines**