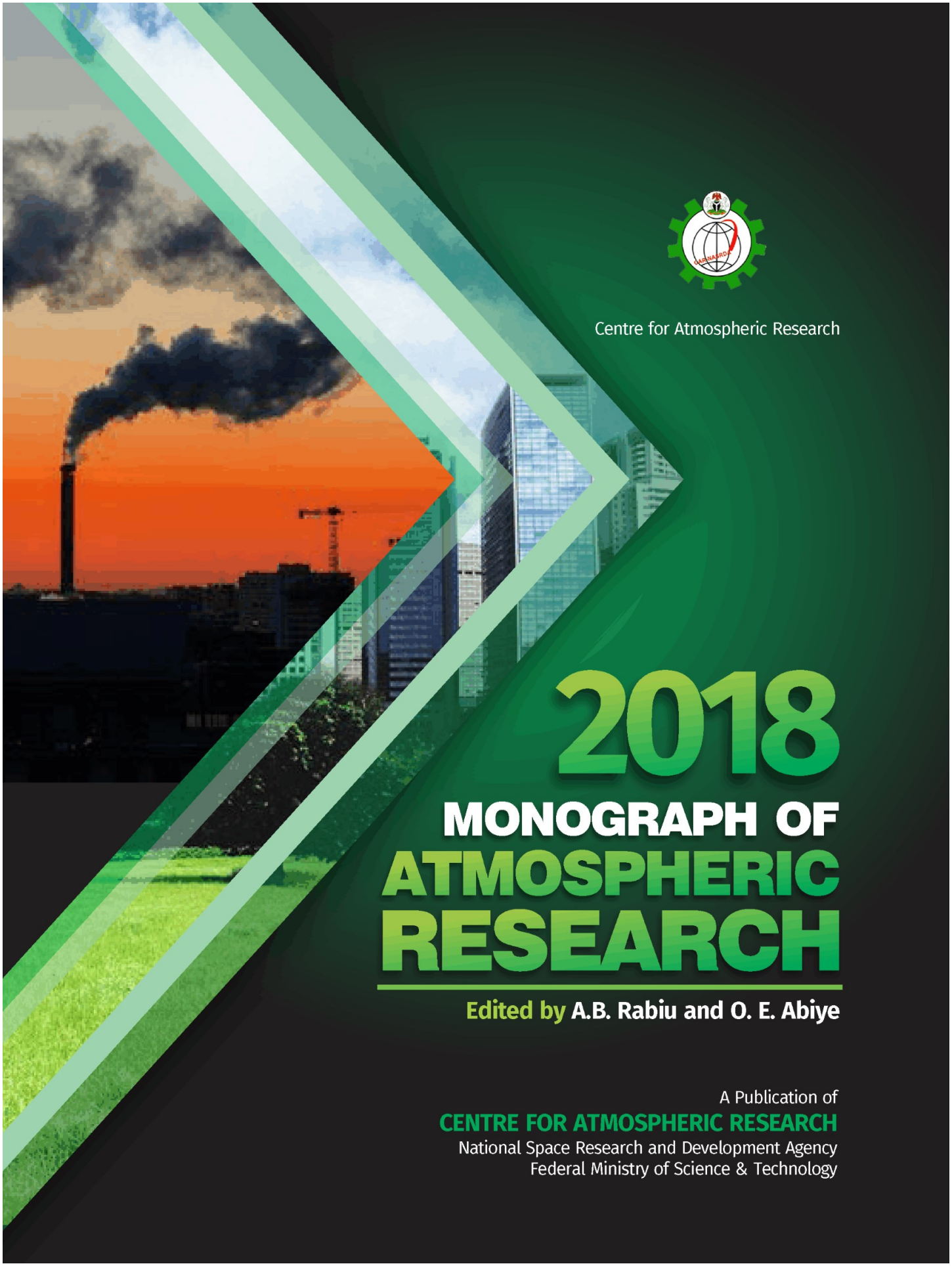

Centre for Atmospheric Research

2018 MONOGRAPH OF ATMOSPHERIC RESEARCH

Edited by A.B. Rabiu and O. E. Abiye

A Publication of
CENTRE FOR ATMOSPHERIC RESEARCH
National Space Research and Development Agency
Federal Ministry of Science & Technology

Centre for Atmospheric Research

2018

MONOGRAPH OF ATMOSPHERIC RESEARCH

Edited by A.B. Rabiu and O. E. Abiye

A Publication of
CENTRE FOR ATMOSPHERIC RESEARCH
National Space Research and Development Agency
Federal Ministry of Science & Technology

MONOGRAPH OF ATMOSPHERIC RESEARCH 2018

First Published in 2018

ISBN: 978-978-972-859-6

Printed in Nigeria
by Simplicity Press
Tel. +234 (0)803 085 1374
Email: dapoashaolu@yahoo.com

PREFACE

The Centre for Atmospheric Research was established in January 2013 with a compelling mission to improve our understanding of the behaviour of the entire spectrum of the Earth's atmosphere; promote capacity development in relevant atmospheric sciences as a way of facilitating international competitiveness in research being conducted by atmospheric scientists; and disseminate atmospheric data/products to users towards socio-economic development of the Nation. CAR's extant core research focus includes: space weather, tropospheric studies, atmospheric research software and instrumentation development, microgravity and human space technology, and atmospheric chemistry and environmental research.

Pursuant to the above, The *Monograph of Atmospheric Research* published by the Centre for Atmospheric Research (CAR), is a collection of peer-reviewed manuscripts in Atmospheric Sciences and closely related fields. This maiden edition comprises articles presented during two separate workshops; *1st National Workshop on Microgravity and Environmental Research* (26 - 29 November, 2017) and *1st National Workshop on Air Quality* (13 - 16 March, 2018). Such workshops are integral part of CAR's capacity building program and they were primarily aimed at advancing the course of atmospheric research in Nigeria towards sustainable development. The Microgravity workshop was geared towards introducing new research opportunities in space life science by simulating microgravity conditions here at the earth's surface as a means of investigation space biological environment. The Air Quality workshop was organized in collaboration with Ministry of Environment and Nigerian Meteorological Agency (NIMET). The workshop analysed current Air Quality scenario in Nigeria, explored new opportunities for collaborative research and offered novel means of improving the present quality of life of the populace without jeopardizing the chance of the future generation. Cumulatively 196 participants participated in these two workshops and about 52 articles were eventually submitted for publication consideration in this monograph. The twenty-one articles in this very monograph are the articles that eventually made it through the rigorous peer-review process. We remain grateful to the reviewers for doing thorough work on the articles.

Thus, we are very pleased to present the *2018 Monograph of Atmospheric Research* which contains twenty-one articles, including some review papers, to readers in all spheres of interest across Nigeria and beyond. It is our hope that this effort will continue and will serve as a reference to atmospheric researchers in Nigeria.

Prof. A. B. Rabiu and Dr. O. E. Abiye,
Editors

Centre for Atmospheric Research

Preliminary study of the effects of Orgone Accumulator charged seeds on growth and yield of Maize and Okra in Rainforest Agro-Ecological zone of South West Nigeria

B. I. Okere[1], O. M. Akinnagbe[2], A. B. Rabiu[3], R. A. Adebayo[4], L. S. Fayeun[4], I. A. Musa[3], O. Patrice[5] and A. O. Kayode[6].

[1]Centre for Basic Space Research, University of Nigeria, Nsukka.
[2]Department of Agricultural Extension and Communication Technology, Federal University of Technology, Akure.
[3]Centre for Atmospheric Research, National Space Research and Development Agency, Kogi State University Campus, Anyigba.
[4]Department of Crop, Soil and Pest Management, Federal University of Technology, Akure.
[5]Space Energetics (PTY) LTD, Observatory, Cape Town 7925, South Africa.
[6]Department of Agricultural Extension and Rural Development, University of Ilorin, Ilorin.
Corresponding author's emails: wolexakins@yahoo.com ; omakinnagbe@futa.edu.ng

ABSTRACT

This preliminary study was undertaken at the Teaching and Research Farm of the Federal University of Technology, Akure, Nigeria to evaluate the effect of Orgone accumulator charged seeds on the growth and yield of maize and okra. Two varieties (local and improved) of each crop were tested. The seed samples were divided into two, one was charged with Orgone accumulator 10 hours for 5 days while the other was not charged. The experiment was laid out in Randomised Complete Block Design (RCBD) with three replications. Data collected on growth and yield parameters were subjected to analysis of variance. The results for okra showed non-significant differences ($P<0.01$) between charged and uncharged seeds in terms of growth and yield. However, Orgone accumulator charged okra seeds in both varieties had longer fruit length than the uncharged (charged improved and local varieties had 7.45 cm and 5.91 cm, respectively while uncharged improved and local varieties had 6.95 cm and 5.26 cm, respectively). Also, flowering was delayed in both okra varieties by Orgone charge between 1 to 3 days. The results for maize indicated that Orgone promoted early plant growth significantly ($P<0.01$) as Orgone charged seeds of both varieties had taller plant height than the uncharged (uncharged improved had 10.63 cm while charged improved had 10. 04 cm). Whereas uncharged seeds of both varieties had significant higher average cob weight (uncharged improved and local varieties had 66.65 g and 81.52 g, respectively while charged improved and local varieties had 58.69 g and 63. 45 g, respectively) and flowered earlier (about 2 days earlier) than charged ones. Flowering was significantly influenced in both crops thus, there is prospect in using Orgone charge to control flowering in crops. These preliminary findings showed that Orgone accumulator charge has some potential that need further exploration. It is therefore recommended that, further experiments are to be conducted with seeds of crop charged with Orgone accumulator at varying periods.

Keywords: Orgone accumulator, seed, okra, maize, effect.

Citation: Okere, B. I., Akinnagbe, O. M., Rabiu, A. B., Adebayo, R. A., Fayeun, L. S., Musa, I. A., Patrice O. and Kayode A. O., 2018. Preliminary study of the effects of Orgone Accumulator Charged Seeds on growth and yield of Maize and Okra in Rainforest Agro-Ecological zone of South West Nigeria. Monograph of Atmospheric Research 2018, Edited by A. B. Rabiu and O. E. Abiye, Centre for Atmospheric Research, Anyigba, Nigeria. pp. 19-23.

INTRODUCTION

Food insecurity has been the major challenge facing the world. Food security is defined as a condition where all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (*World Food Summit, 2003*). The importance of food to individuals and households cannot be overemphasized. According to Abudullahi (2002), food is not only a basic need; it also provides the physiological foundation upon which other considerations and human activities are structured. Food security is simply having sufficient and adequate quantities of various staple foodstuffs available to the entire citizenry at affordable prices. It further means that not only must we engage in mass food production, but also we need to ensure that most Nigerians have sufficient purchasing power to acquire food items that guarantee good feeding and nutrition.

Maize (*Zea mays*) is a very important cereal crop in the world. The uses of maize are not only restricted to human food but it is also important as animal feed and for industrial purposes. Its prospects over other food crops are overwhelming, it is proposed to be the highest produced crop in the world by 2025 and demand for it would be doubled by 2050 in the developing countries (*CIMMYT and IITA, 2010*). The crop is cultivated worldwide on more than 160 million hectares every year, annual production was estimated at 785 million tons (*Umar et al., 2014*).

The production of vegetable has been recognized as the most affordable and accessible sources of micronutrient, which is increasingly regarded as a catalyst for rural development and as a means of increasing and generating foreign exchange in Africa (*AVRDC, 2004*). Okra is the most important fruit vegetable crop and a source of calorie (4550Kcal/kg) for human consumption. It ranks first before other vegetable crops (*Babatunde et al., 2007*). The green fruits are rich sources of vitamins, calcium, potassium, and other minerals (*Lee et al., 1990*). The essential and non-essential amino acids that okra contains are comparable to that of Soybean. It was also reported by *Eke et al. (2008)* that fresh okra fruit is a good source of vitamins, minerals

and plant proteins. Okra ranks third in terms of consumption and production area following tomato and pepper (*Ibeawuchi, 2007*). Nigeria is one of the producer of okra in the world producing. Young fruit harvested before differentiation of fibres and full seed development, are consumed either alone or in salad after cooking in salty water, are added to stews and in the preparation of certain African sauces (*Farinde, et al., 2006*). Okra production constitutes about 4.6 percent of the total staple food production in Nigeria in the year 1970 – 2003 (*CBN, 2004*).

Ensuring food security for the increasing population demands that all available means should be explored. Orgone is an atmosphere of a life energy supposed to be responsible for all the atmospheric phenomena. The application of Orgone energy is suspected to be a promising method of improving plant growth and yield. The Orgone energy accumulator has been shown to work a remarkable effect upon the growth of seedlings, increasing the sprouting length by 34%, and germination rates and overall weights by smaller percentages (*DeMeo, 2010*). Therefore, this preliminary study was undertaken to evaluate the effect of Orgone accumulator charged seeds on the growth and yield of maize and okra.

MATERIALS AND METHODS

This preliminary study was carried out at the Teaching and Research Farm of the Federal University of Technology, Akure. Akure a tropical rainforest zone lies between longitude 5°06'E to 5°38'E and between latitude 7°07'N to 7°37'N in the Southwestern Nigeria (*Ayeni, 2011*). The study location is characterized by bimodal pattern of rainfall with an annual mean of about 1524 mm with a mean temperature of 27^{0}C. Two maize varieties used were: Obasupa 2 hybrid obtained from Premier Seed Company (*improved variety*) market sourced seed (*local variety*). Also, the improved okra variety was a spineless variety obtained from Premier Seed Company while the local one was a market sourced variety. The seed samples of both crops were divided into two, one was charged with Orgone accumulator at 10 hours for 5 days (50 hours) while the other was not charged. The experiment was laid out separately for each crop in Randomised Complete Block Design (RCBD) with three replications. The land preparation involved ploughing and harrowing. Planting was done for both crops on 4th July, 2017.

For maize, the experimental area was 11 m × 8 m (88 m^2). The land used was divided into three blocks and each block measured 11 m × 2 m. Each block had four plots and each plot measured 3 m by 2 m. Alley ways of 1 m were created between the blocks and plots. Two seeds were planted per hill at the spacing of 0.75 m by 0.25 m (later thinned to one per hill). The field was manually weeded at 3, 6 and 9 weeks after planting (WAP). NPK 20:15:15 fertilizer was applied at 3 WAP and Urea was applied three weeks later. Four plants were tagged in the middle of each plot on which growth data were collected while all cobs harvested per plot were used for field weight. The following data were collected on each variety for agronomic and yield characters: number of days to 50% tasseling, number of days to 50% silking, number of leaves, plant height (cm), ear height (cm), number of cobs, cob length (cm), cob girth (cm), field weight (g) and 100grain weight (g). Four plants were tagged in the middle of each plot on which growth and yield data were collected.

For okra, the experimental area was 8 m × 6.5 m (52 m^2). The land used was divided into three blocks and each block measured 8 m × 1.5 m (12 m^2). Each block had four plots and each plot measured 2 m by 1.5 m. Alley ways of 1 m were created between the blocks and plots. Three seeds were planted per hill at the spacing of 0.60 m by 0.30 m (later thinned to two per hill). The field was manually weeded at 2, 4, 6 and 8 WAP. NPK 20:15:15 fertilizer was applied at 3 WAP. Four plants were tagged in the middle of each plot on which growth and yield data were collected.

The following data were collected on each variety for agronomic and yield characters: number of days to 50% flowering, number of leaves, plant height (cm), fruit girth and fruit length. The data obtained for each character on the basis of sampled plants were averaged and the mean values obtained were subjected to two-way analysis of variance using Minitab Version 17 and significant means were separated using Tukey test.

RESULTS

The results in Table 1 revealed no significant differences ($P>0.05$) in the number of leaves at 2 and 4 WAP, plant height at 4 WAP, ear length and plant height at harvest but plant height at 2 WAP was significantly different at ($P<0.05$). Both treated and untreated improved varieties had highest values (10.63 and 10.04) respectively. These measured parameters increased with increase in weeks after planting.

The number of days to tasselling and silking in treated and untreated improved and local varieties of maize showed similar pattern (Figure 1). In both maize varieties flowering (Tasselling and silking) was prolonged in the treated seeds compared with the untreated seeds.

number of days to tasseling and silking of Maize

The effects of Orgone accumulator charged seeds on the field weight of maize were shown in Figure 2. Significant differences ($P<0.05$) were observed in the field weight of maize with both the untreated improve and local varieties having the highest weight. Observations on the mean cob weight and 100-grain weight showed similar pattern observed with the field weight with the treated improved and local being significantly lower compared to the untreated (Figures 3 and 4).

Table 1: Effects of orgone accumulator charged seeds on growth parameters of Maize

Treatment	Number of leaves 2WAP	Number of leaves 4WAP	Plant height 2WAP (cm)	Plant height 4WAP (cm)	Ear height at harvest (cm)	Plant height at harvest (cm)
Treated improved	3.83a	10.33a	10.63a	104.33a	49.83a	126.75a
Treated local	3.33a	9.67a	6.45b	93.08a	53.08a	148.19a
Untreated improved	3.83a	11.00a	10.04ab	89.42a	53.92a	132.58a
Untreated local	3.33a	11.25a	6.54b	104.83a	56.75a	142.50a

Means in a column with the same letter (s) are not significantly different by Tukey's test ($p \leq 0.05$)

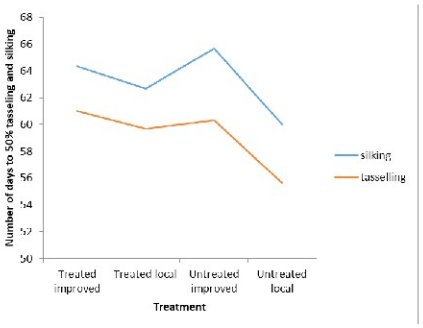

Figure 1: Effects of orgone accumulator charged seeds on

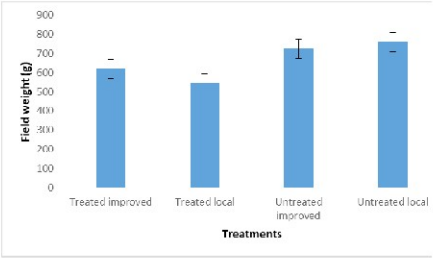

Figure 2: Effects of Orgone accumulator charged seeds on field weight of maize

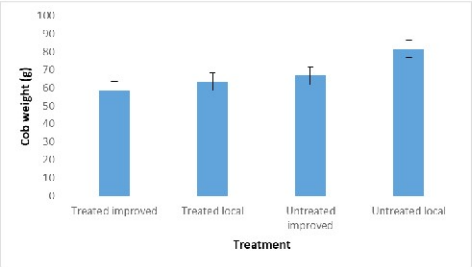

Figure 3: Effects of orgone accumulator charged seeds on cob weight of maize

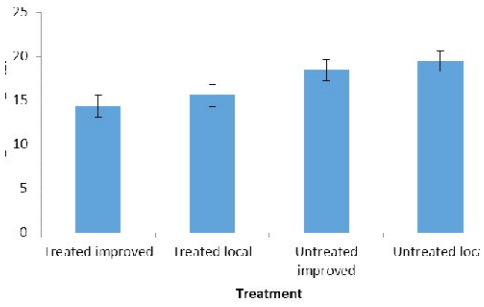

Figure 4: Effects of Orgone accumulator charged seeds on 100-grain weight of maize

Table 2 showed that there was no significance difference (P>0.05) among the varieties for number of leaves and plant height at 2 and 4 WAP.

The number of days to flowering in Figure 5 indicated that treated and untreated improved okra seeds reached 50% flowering earlier than the treated and untreated local varieties. The fruit length was also found to be significantly higher in both the treated and untreated improved varieties compared with the local varieties whether treated ot not (Figure 6). The fruit girth in the treated improved and local varieties had higher values compared with the untreated improve and local varieties (Figure 7).

Table 2: Effects of Orgone accumulator charged seeds on growth parameters of okra

Treatment	Number of leaves 2 WAP	Number of leaves 4 WAP	Plant height 2 WAP	Plant height 4 WAP
Treated improved	3.83a	5.00a	6.87a	23.17ab
Treated local	4.17a	4.17a	4.21a	13.67b
Untreated improved	4.08a	4.08a	7.91a	28.58a
Untreated local	4.08a	4.08a	5.87a	21.58ab

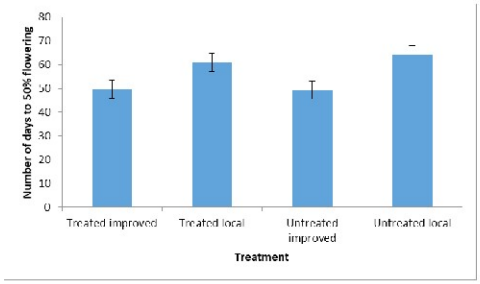

Figure 5: Effects of Orgone accumulator charged seeds on number of days to flowering of okra

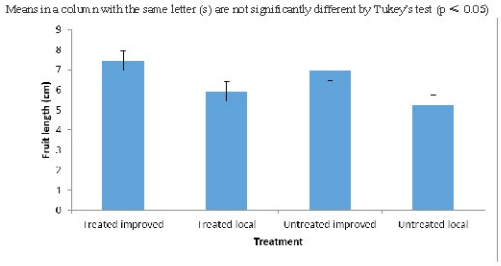

Figure 6: Effects of Orgone accumulator charged seeds on fruit length of okra

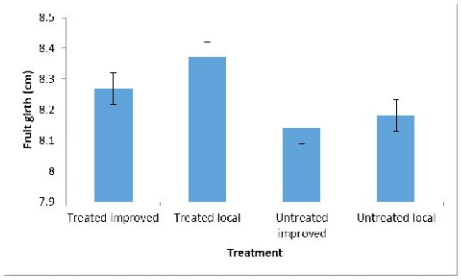

Figure 7: Effects of Orgone accumulator charged seeds on fruit girth of okra

DISCUSSION

The application of Orgone energy is expected to be a promising method of improving plant growth and yield. The higher plant height at seedling stage observed in the charged over the uncharged improved maize variety is likely due to the impact of Orgone charge. However, in okra, the orgone charge seemed to reduce early growth rate in okra. This may suggests that effects of orgone charge might be crop specific. Many researchers of Orgonomy have diverse opinions about it effectiveness as mixed results have been reported in different crops charged at different time (*DeMeo, 2010*). The inconsistency observed in the local varieties might be due to lack of genetic integrity of the seed lost due high variability within the seeds, therefore genetically known and stable seeds should be used for future work.

The delayed flowering (Tasselling and silking) in the charged seeds of both maize varieties and improved okra might be due to orgone charge. Delayed flowering is a desirable attribute in some determinate crops such as sweet sorghum, sugar cane, kenaf etc. Therefore, there is prospect in using Orgone charge to control flowering in crops. The observed higher yield parameters in uncharged over charged seeds of maize which was in contrast with that of okra also implies crop specificity of orgone treatment. Low yield observed with orgone treatment is not peculiar to this preliminary study. Previous workers have reported similar findings. *Roberto (2005)* reported reduction in yield of maize charged with orgone for 231 hours (9 days). Results of experiments with the orgone treatment on several crop species before planting in the field have ranged from no observed response to significant effects on crop growth and yield. One proposed reason for response observed in this study is that the charging time is not enough compared to the required best charging time of the seeds around 10-15 days to get the maximum yield.

CONCLUSION

These preliminary findings showed that Orgone accumulator charge have some potentials that need further exploration. The observed results showed the influence of orgone charge on early plant growth, flowering and yield of maize and okra. The inconsistency in the result obtained in this study requires further investigation to evaluate not yet investigated potential effects of the orgone charge on the charged seeds. The type of responses (growth, flowering and yield) exhibited by treating the tested crops with orgone charge, though not generally immediately apparent the results are scientifically interesting. With continued research efforts, however, the orgone accumulator may find beneficial uses in improvement of agricultural productivity in Nigeria. Based on the results, it is recommended that: further experiments of the effect of Orgone accumulator charged seeds on the growth and yield of maize and okra should be conducted across locations in the country and for several seasons. Crops should be charged with Orgone accumulator at varying periods. Future research work should include laboratory experiment to test for any hazard in the products from Orgone accumulator seeds.

Acknowledgement

The authors gratefully acknowledge the Centre for Atmospheric Research, National Space Research and Development Agency, Kogi State University Campus, Anyigba for funding the research project.

REFERENCES

Abdullahi, H. (2002). Putting Globalization to work for the poor: sustainable food security for all by 2020. Proceedings of an International Conference Organized by IFPRI, Washington, D.C.

Asian Vegetable Research Development Centre for Africa (AVRDC) (2004). 11th Regional Training Course on Vegetable Crop Production and Research. Tanzania 4th July – 4th November, 2004.

Ayeni A.O. (2011). Malaria Morbidity in Akure Southwest Nigeria: A Temporal Observation in a Climate Change Scenario. Trends in Applied Sciences Research, 6: 488-494.

Babatunde, RO, Omotesho, OA and Sholotan, OS, (2007):

Socio-economic Characteristics and Food security status of farming household in Kwara State, North – Central Nigeria. Pakistan Journal of Nutrition, 6(1): 16

Central Bank of Nigeria (CBN) (2004). Annual Report and Statement of Account Nigeria.

DeMeo J. (2010). The Orgone Accumulator Handbook: Wilhelm Reich's Life-Energy Discoveries and Healing Tools for the 21st Century, with Construction Plans, Natural Energy Works, Ashland, Oregon.

Eke J., Achinewhu S.C. and Sani L. (2008). Nutritional and sensory qualities of some Nigerian cake. Nigeria Food Journal, 26(2): 12-17

Farinde A.J., Owolarafe O.K. and Ogungbemi O.I., 2006. Assessment of production, processing, marketing and utilization of okra in Egbedere local government area of Osun State, Nigeria. Journal of Agronomy, 5: 342-349.

Ibeawuchi K. I. (2007). Intercropping a food production strategy for resource poor farmers. Nature and Science, 5(1): 46–49.

International Maize and Wheat Improvement Center (CIMMYT) and International Institute of Tropical Agriculture {IITA} (2010). Maize global alliance for improving food security and livelihoods of the resources-poor in the developing world. Draft proposal submitted b CIMMYT & IITA to the CGIAR Consortium Board, Mexico. Pp.91.

Lee K.H., Cho C.Y., Yoon S.T., Park S.K., (1990). The effect of nitrogen fertilizer plant density and sowing date on the yield of okra. Korean Journal of Crop Science, 35(8): 179-183.

Umar U.U, Ado S.G., Aba D.A., and Bugaje S.M. (2014). Estimates of Combining Ability and `Gene Action in Maize (Zeamays L.) Under Water Stress and Non-stress Conditions. Journal of Biology, Agriculture and Healthcare, 4(25): 247-254.

World Food Summit (2003), Agriculture and Sustainable Development, Rome: FAO.

Centre for Atmospheric Research

National Space Research and Development Agency
Federal Ministry of Science & Technology

Our Mandates

The Center for Atmospheric Research, CAR, is a research and development center of NASRDA committed to research and capacity building in the atmospheric and related sciences. CAR shall be dedicated to understanding the atmosphere—the air around us—and the interconnected processes that make up the Earth system, from the ocean floor through the ionosphere to the Sun's core. The Center for Atmospheric Research provides research facilities, and services for the atmospheric and Earth sciences community.

Contact Address

Centre for Atmospheric Research,
National Space Research and Development Agency,
Federal Ministry of Science and Technology
Kogi State University Campus, Anyigba,
Kogi State - Nigeria.

Telephone: +234 8105793836
Email: info@carnasrda.com
Web: www.carnasrda.com

..... *creating opportunities*.....

ISBN 978-978-972-859-6
9 789789 728596