

SC2019/AGE26

INFLUENCE OF SEX ON RELATIONSHIP BETWEEN MORPHOMETRIC TRAIT MEASUREMENT AND CARCASS TRAITS IN BROILER CHICKEN RAISED IN HUMID TROPIC

Sam, I. M.

Department of Animal Science, Faculty of Agriculture, Akwalbom State University, Akwalbom State, Nigeria
Email:sidorennyin@yahoo.com

ABSTRACT

This study was conducted to determine the influence of sex on relationship among carcass traits (carcass weight, breast, drumstick, thigh, wings) and morphometric traits (body weight, breast girth, keel length, shank length, thigh length, wing length and body length) in broiler chicken. And also to evaluate correlated relationship between the morphometric traits and carcass traits. Sixty broiler birds were divided into two treatment groups (male and female) each group was replicated thrice with ten birds per replicate. The birds were rear in deep litter system till the attain 56 days of age; body weight and morphometric traits measurements were taken on the 56 day. Eighteen birds (nine from each group) were randomly selected, slaughtered and the carcass traits measured and recorded. The data obtained from these studies were subjected to Pearson correlation analysis. The correlated relationship among most carcass traits and morphometric traits were significantly positive ($p < 0.001$) with correlation coefficients ranging from 0.01-0.681 in males (M), females (F) and in combination of males and female (M+F). The correlation between morphometric traits and carcass traits showed that breast girth and live body weight were positively and significantly ($p < 0.001$) correlated with all carcass traits in all the sex groups. The observed significant relationship among the morphometric traits and carcass traits as well as between morphometric traits and carcass traits is an indication of the existence of high level of dependency amongst these traits, thus improvement in any one of these traits would elicit a correlated response in the other traits. More so, the positive and significant correlated relationship between carcass traits and breast girth indicate that breast girth can be used as indirect selection criteria for carcass traits in broiler chickens

Key words: Broiler chicken, Correlation, Sex, Morphometric traits, Carcass traits

SC2019/AGE27

INFLUENCE OF FEED TYPE AND AGE OF BROODSTOCKS ON EGGS QUALITY OF HETEROBRANCHUS LONGIFILIS

A. J. Otoh and Nlewadim, A. A.

Department of Fisheries and Aquaculture, Faculty of Agriculture, Akwa Ibom State University, Obioakpa Campus, Oruk Anam, Nigeria; othanikan18@gmail.com

ABSTRACTS

This study was conducted to investigate the influence of feed type at different age of broodstock on the egg quality of *Heterobranchus longifilis*. Six (6) month old, 1½ year old and 2½ year old *Heterobranchus longifilis* males and females of equal numbers (150males and 150females) were subjected to commercial and Farm made feed treatments with 42 crude protein level for one year. This produced broodstocks which were 1½ year old, 2½ year old and 3½ year old. This were used for evaluation of egg quality of *Heterobranchus longifilis*. The statistical analysis revealed that, Both feed type and age of broodstock showed significant ($P < 0.0001$) effects on Egg weight, number of egg/ gram ovary weight, absolute and relative fecundity, including GSI. Above parameters also increased significantly ($p < 0.0001$) with the increase in the age of broodstock. Broodstock fed commercial feed produced 378.32g of eggs, 503.46 number of egg/gram ovary weight, 188024 and 74.56 absolute and relative fecundity respectively and 21.18 Gonadosomatic index (G.S.I) while broodstock fed farm made feed produced 367.96g of eggs, 551.25 as the highest number of egg/gram ovary weight, 188024 and 73.63 absolute and relative fecundity with 16.86 G.S.I. Three and a half (3½) year old broodstock had 391.38g weight of egg, 499.75 number of egg/ gram ovary weight, 195581 absolute fecundity, 76.57 relative fecundity, and 20.23 gonadosomatic index while the youngest broodstock (1½ old) produced 357.82g of eggs, 513.56 number of eggs/gram ovary weight, 183728 and 71.94 absolute and relative fecundity respectively with G.S.I value of 17.50. Interaction ($P < 0.0001$) of feed type and age of parent broodstock were observed on all the egg quality accessed in this study.



BOOK OF ABSTRACTS

SOCIETY FOR AGRICULTURE, ENVIRONMENTAL RESOURCE AND MANAGEMENT (SAEREM)

2ND National ANNUAL CONFERENCE (AKSU, 2019)

Theme:
CLIMATE SMART AGRICULTURE, FOOD SECURITY AND ENVIRONMENTAL MANAGEMENT CHALLENGES IN NIGERIA



18TH-20TH NOVEMBER, 2019



AKWA IBOM STATE UNIVERSITY (TETFUND HALL, OBIO AKPA CAMPUS)

CHIEF HOST - PROF. ENO J. IBANGA
Vice Chancellor, Akwa Ibom State University

SAEREM 2019 - LOC MEMBERS

- | | | |
|-----------------------|---|-----------|
| 1. Dr. E. A. Akpan | - | Chairman |
| 2. Engr. P. Ekpenyong | - | Secretary |
| 3. Dr. E. E. NYONG | - | Treasure |

SAEREM 2019 EDITORIAL SUBCOMMITTEE MEMBERS:

- | | | |
|-------------------------|---|-----------|
| 1. Prof. N.M. John | - | Chairman |
| 2. Prof. G. Udoh | - | Member |
| 3. Dr. S. Akpan | - | Member |
| 4. Engr. P. Etim | - | Member |
| 5. Dr. M. Dickson | - | Member |
| 6. Dr. N. Etim | - | Member |
| 7. Dr. U. Ekpo | - | Member |
| 8. Dr. Uwemedimo Okon | - | Member |
| 9. Engr. P. Ekpenyong | - | Secretary |
| 10. Dr. J. Ukpatu | - | Member |
| 11. Dr. B. Ofem | - | Member |
| 12. Dr. Terzungwe Dugen | - | Member |
| 13. Dr. I. Umoh | - | Member |
| 14. Dr. I. Udo | - | Member |

SAEREM 2019 EXHIBITION SUBCOMMITTEE MEMBERS:

- | | | |
|-----------------------|---|-----------|
| 1. Dr. I. Meme | - | Chairman |
| 2. Dr. Uwemedimo Okon | - | Member |
| 3. Dr. O. Akata | - | Member |
| 4. Dr. G. Enyenihi | - | Member |
| 5. Dr. F. Umoh | - | Member |
| 6. Dr. U. Ekong | - | Member |
| 7. Dr. J. Enyong | - | Secretary |
| 8. Dr. U. Ufot | - | Member |
| 9. Dr. A. Efretuei | - | Member |
| 10. Mrs. Inimfon | - | Member |
| 11. Dr. B. Ofem | - | Member |
| 12. Dr. N. Etim | - | Member |
| 13. Dr. U. Jacob | - | Member |

SC2019/AGE24

**SEEKING EMPIRICAL EVIDENCE OF DETERMINANTS OF VALUE ADDITION STAGES
BY MAJOR OIL PALM VALUE CHAIN ACTORS IN SOUTH-SOUTH ZONE, NIGERIA**

¹Udoka, S.J., ²Akpan S. B., ³Inimfon V.P., and ⁴Ugwu D.S.

¹Department of Agricultural Economics and Extension,
Akwa Ibom State University, Ikot Akpaden, Mkpai-Enin, P.M.B. 1167, Uyo, Nigeria
²Enugu State University of Science and Technology, Agbani, Enugu State, Nigeria

Corresponding author: udokasamuel200@yahoo.com; Phone number: +2348-084-826-695

ABSTRACT

Following the negligence of the oil palm sector after the discovery of crude oil in Nigeria, the South-South zone that supplied a substantial quantity of palm fruit in Nigeria was distressed manifesting in apathy for expansion of oil palm plantations and heavy dependence on palm fruits from the wild (which is mostly of *dura* specie known for low production of palm oil), dominance of manual processing techniques among actors and minimal level of value addition in the oil palm value chain. Value addition efforts by the major actors (oil palm farmers and processors) clustered around the lower rung of the oil palm value chain ladder, which hardly exceeded supply of fresh palm nuts, crude palm oil and un-cracked palm kernel. This antecedence provoked this study, whose specific objectives were to: examine the factors that determine number of stages of value addition by oil palm farmers and oil palm processors in the study area. Beside Focused Group Discussions (FDGs), primary data were obtained using structured questionnaires from 396 respondents disaggregated into 240 oil palm farmers and 156 oil palm processors through a combination of purposive and random sampling methods. Descriptive tools as well as the Poisson regression model were used to analyze the specific objectives. Result showed that value addition among oil palm farmers was low at 32.08%; 67.92% of them sold palm fruits either in fresh fruit bunches (FFBs) or as fresh palm nuts (FPN). Similarly, value addition among processors was dimly low as only 6.87% went beyond production of crude palm oil and un-cracked palm kernel which were mostly manually processed. Poisson regression result indicated that age, education, source of fresh fruit bunch, asset, utility of fresh fruit bunch, extension contact, credit and farm income were the significant variables that affected number of stages of value addition among oil palm farmers; while processing experience, education, household size, farm income, credit, gender, age, social organization membership were positive and significant variables affecting number of stages of value addition by oil palm processors. It was recommended that oil palm farmers should gradually withdraw from the wild for fresh fruit bunches by a ten year oil palm plantation ownership plan. Furthermore, farmers and processors should develop savings habit from their current earnings to accumulate capital for advancement to higher levels of the chain and thus enhance their financial stability. Moreover, Government should as a matter of priority keep rural roads motorable to ease processors' evacuation of their products to markets to reduce their rate of vulnerability to exploitation by traders who for advantage of resources, invade villages and buy from farmers and processors at paltry fees, leaving them with marginal financial rewards.

Key words: Oil Palm, determinants, regression, farmers, processing, value chain, Poisson.

SC2019/AGE25

CLIMATE CHANGE, PLANT DISEASES AND THE CHALLENGE OF FOOD SECURITY
Okon A Ansa¹

¹Professor of Plant Pathology, Department of Crop Science, University of Uyo
Adjunct Professor, Department of Crop Science, Akwa Ibom State University, Obioakpa

ABSTRACT

Climate change is driven by global warming which in itself is largely a result of the greenhouse effect. The greenhouse effect arose from the depletion of the protective ozone layer in the atmosphere and has been driven by anthropogenic activities. The period from 1983-2012 have been the warmest 30-year period of the last 1400 years. Global temperature over the earth's surface has increased by 0.85°C from 1880-2012. Over the period from 1901-2010, global mean sea-level rose by 0.19m. Population size, economic activities involving fossil fuel consumption and industrialization, land-use patterns and life-style have combined to drive up CO₂ emissions. Climate change is having and is predicted to have significant impact on food security. Global temperature rises combined with increasing food demand are expected to pose significant risk to food security globally. Global warming is expected to impact Africa in several ways including reduction in crop and animal yields. Projected sea-level rise will affect low-lying areas with large populations. The cost of adaptation and mitigation in affected countries could cost up to 5-10% of GDP. By 2080, African arid and semi-arid land is expected to increase by 5-8%. The projected impact on agriculture, forestry and the ecosystem include increased disease and insect outbreaks, lower yields, soil erosion, increase danger of wild-fires and salinization of fresh water bodies. These negative impacts will affect food security. Climate change affects the level of yield losses due to plant pathogens. The major factors of climate - temperature, CO₂, moisture, light and wind - play major roles in the levels of incidence and severity of plant pathogens.

Key words: Climate change, greenhouse effect, anthropogenic, food security, plant diseases

SC2019/AGE22

DETERMINATION OF SOIL QUALITY IN A TROPICAL ECOSYSTEM OF ODUKPANI LOCAL GOVERNMENT AREA IN CROSS RIVER STATE.**John, U. N.; P. B. Okon and N. M. John**

University of Calabar, Calabar, Cross River State, Nigeria

E-mail: drnmjohn@yahoo.com

GSM: 08065824720

ABSTRACT

Soil quality of Odukpani wetland was studied with the aim of classifying the wetland soil in Odukpani LGA in terms of quality, sustainability and fertility indexes. Twenty soils samples were gotten from the surface. The soil was sampled using grid geo-systematic sampling technique. The soil samples were analyzed for the routine physicochemical properties. The results showed that mean composition of sand, silt and clay were 64.65, 15.45 and 19.9 % respectively. The mean composition of organic carbon was 1.85 %, 4.71 for pH, 0.151 % for total Nitrogen, 59.9 mg/kg for available phosphorus. Bulk density ranged from 1.21 to 1.65 g/cm³ with a mean value of 1.45 g/cm³ while ECEC, Base saturation and SAR had mean values of 8.31 cmol/kg, 48.58 % and 0.047 respectively. The sustainability of the soil was evaluated; the result showed that the soil with index of 26 is sustainable with high input. The result was further evaluated using a modified version of Rattan Lal's Soil Quality Index (SQI) model which is the function of the key indicators. The SQI was equal to 26 showing that the soil is sustainable with high input in Rattan Lal's sustainability classification using SQI. The two models used have proved that the soil is equally sustainable with high input. The study showed that the sustainability status of Mkpapa otop wetland was not limited to crop even though some nutrients contents were low and moderate. The soil can be put into good use if there is proper management.

Keywords: Soil Quality, Tropical Ecosystem, Odukpani.

SC2019/AGE23

INFLUENCE OF SEX ON RELATIONSHIP BETWEEN MORPHOMETRIC TRAIT MEASUREMENT AND CARCASS TRAITS IN BROILER CHICKEN RAISED IN HUMID TROPIC**Sam, I. M.**

Department of Animal Science, Faculty of Agriculture,
Akwalbom State University, Akwalbom State, Nigeria
Email: sidorenyin@yahoo.com

ABSTRACT

This study was conducted to determine the influence of sex on relationship among carcass traits (carcass weight, breast, drumstick, thigh, wings) and morphometric traits (body weight, breast girth, keel length, shank length, thigh length, wing length and body length) in broiler chicken. And also to evaluate correlated relationship between the morphometric traits and carcass traits. Sixty broiler birds were divided into two treatment groups (male and female) each group was replicated thrice with ten birds per replicate. The birds were rear in deep litter system till the attain 56 days of age; body weight and morphometric traits measurements were taken on the 56 day. Eighteen birds (nine from each group) were randomly selected, slaughtered and the carcass traits measured and recorded. The data obtained from these studies were subjected to Pearson correlation analysis. The correlated relationship among most carcass traits and morphometric traits were significantly positive ($p < 0.001$) with correlation coefficients ranging from 0.01-0.681 in males (M), females (F) and in combination of males and female (M+F). The correlation between morphometric traits and carcass traits showed that breast girth and live body weight were positively and significantly ($p < 0.001$) correlated with all carcass traits in all the sex groups. The observed significant relationship among the morphometric traits and carcass traits as well as between morphometric traits and carcass traits is an indication of the existence of high level of dependency amongst these traits, thus improvement in any one of these traits would elicit a correlated response in the other traits. More so, the positive and significant correlated relationship between carcass traits and breast girth indicate that breast girth can be used as indirect selection criteria for carcass traits in broiler chickens.

Key words: Broiler chicken, Correlation, Sex, Morphometric traits, Carcass traits

- | | | |
|-----------------------|---|--------|
| 14. Mrs. D. Bassey | - | |
| 15. Mr. Howard Usen | - | Member |
| 16. Dr. A. Akpaeti | - | Member |
| 17. Dr. S. Udoka | - | Member |
| 18. Dr. N. Okorie | - | Member |
| 19. Mr. I. D. Udoumoh | - | Member |

ACCOMMODATION AND LOGISTICS SUB-COMMITTEE:

- | | | |
|------------------------------|---|-----------|
| 1. Dr. O. Akata | - | Chairman |
| 2. Dr. F. Umoh | - | Secretary |
| 3. Dr. A. Akpaeti | - | Member |
| 4. Dr. I. Udosung | - | Member |
| 5. Dr. S. Udoka | - | Member |
| 6. Mrs. M. Akpan | - | Member |
| 7. Mr. Patrick Udo | - | Member |
| 8. Mr. Eyibio Udo | - | Member |
| 9. Mr. Augustine Ntekim | - | Member |
| 10. Miss Mmenyene I. Udosen | - | Member |
| 11. Mr. Idem-Obong B. Udosen | - | Member |
| 12. Mr. Bernard Edet | - | Member |

JOURNAL OF AGRICULTURE, ENVIRONMENTAL RESOURCE AND MANAGEMENT (JAEREM)**Editorial Board**

Prof. E. M. Agu
prof. O. K. Kazeem
Prof. O. A. Owolabi
Prof. N. J. Nweze
Prof. D. U. Amadi

Consulting Editors:

Prof. O. Ansa
Prof. T. E. Udoh
Prof. C. K. Amadi
Prof. K. E. Adebayo
Dr. Edna A. Akpan
Dr. K. I
Okeke-Agulu
Dr. E. O. Effiong
Dr. Grace. B. Obila.

Table of Content

S/No. Content

1. Conference LOC Chairman
2. Conference Guest Speaker Address
3. Conference Lead Presenter Address
4. Schedule for Technical Session
5. Abstracts

Pages

SC2019/AGE20

URBANIZATION AND URBAN DEVELOPMENT IN NIGERIA: AKWA IBOM STATE PERSPECTIVE

Akpabio M. Ufot-Akpabio and Beulah I. Ofem

Department of Urban & Regional Planning, Faculty of Environmental Studies,
University of Uyo, Uyo, Akwa Ibom Statefmuaakpabio@yahoo.com

ABSTRACT

This paper examined the development trends, characteristics and the need for urban development in Akwa Ibom State. The exploratory research approach was adopted for the study. It examined the concepts of urbanization and urban areas; it also looked at urbanization trends in Nigeria and in Akwa Ibom State, while considering the characteristics of urban areas in the state. The work revealed the need for the development of urban areas in the states as there are many benefits derivable. Based on the findings, it is concluded that formulating the necessary urbanization and urban development policies including establishment of statute for effective urban/regional/physical planning, management and governance will serve as a vital prerequisite for developing and enhancing transformative potentials embedded in urbanization and urban development.

Key words: Urbanization, urban area, urban development Akwa Ibom State.

SC2019/AGE21

PERFORMANCE AND HAEMATOLOGY OF WEANER PIG FED DIETS CONTAINING DIFFERENT MOLLUSC SHELLS

¹Ukpanah, U. A., ²K. U. Amaefule, ¹L. M. Sam.,¹Department of Animal Science, Akwa Ibom State University,
Obio Akpa Campus,
Akwa Ibom State, Nigeria.²Michael Opara University of Agriculture, Umudike, Abia State Nigeria.
unwanaulkpanah@yahoo.com; 08028322876

ABSTRACT

A study was conducted to determine the performance and haematological indices of weaner pigs fed diets containing different mollusc shells (*Thais coronata*, *Egeria radiata*, *Achatina achatina*, *Pachymelania aurita*) with 30 hybrid (Landrace × Large white) weaner (8 – 10 weeks old) pigs whose initial life weight ranged from 9.00 to 12.20 kg. The pigs were randomly assigned to five dietary treatments (4 mollusc shell and control) with each treatment having six pigs and two pigs per replicate. The supplementation of diets with each mollusc shell was 100 g per 100 kg diet. The experimental design was completely randomized design (CRD) with each treatment replicated three times. Performance parameters measured were weight gain, feed intake, feed conversion ratio (FCR), protein intake, and protein efficiency ratio and feed cost of weight gain while haematological indices were pack cell volume (PCV), haemoglobin (Hb), white blood cell (WBC), mean corpuscular haemoglobin (MCH) and mean corpuscular haemoglobin concentration (MCHC). Results showed that there were no significant ($P > 0.05$) differences in the performance of weaner pigs fed diets supplemented with different mollusc shells. The haematological indices showed significant ($P < 0.05$) differences among the treatments in PCV. It was concluded that the inclusion of mollusc shells in the diets of weaner pigs could improve performance in term of body weight gain.

Keywords: Weaner pig, Performance, Haematology, Mollusc shells.

SC2019/AGE18

RESOURCE USE EFFICIENCY IN OIL PALM PRODUCTION IN AKWA IBOM STATE, NIGERIA

Nyong, E. E¹ and Efretuer A.²

1. Department of Agricultural Economics & Extension, Akwa Ibom State University, Nigeria.

08023406124, eenyong16@gmail.com

2. Department of Crop Science, Akwa Ibom State University, Mkpai Enin, Nigeria

09096936733, adidiefretuei@gmail.com

ABSTRACT

This study determines the resource use efficiency of oil palm production in Akwa Ibom State, Nigeria. The population of the study comprises oil palm tree farmers. Multistage sampling technique was adopted to select 105 respondents. Primary data were obtained using a well-structured interview schedule while descriptive and inferential statistics were used for the analysis. The descriptive statistical tools such as mean, frequency distribution, table, percentages, were used to present the Socio-economic characteristics of the respondents. The inferential statistical tools; budgetary analysis and regression analysis were employed to measure the profitability of oil palm production and dependence of oil palm output on various inputs used respectively. The result of the findings revealed the Socio-economic characteristics of the respondents in the study area as follows; 76.0% were male, 65.3% were within the age range 30-40 years while, 91.2% were married and 77.6% of the respondents had primary and secondary education. The results also revealed that although semi-mechanized palm oil processors were not fully economically efficient in the use of resources, but was still more profitable relatively. Palm oil processors should therefore adopt good management strategies and practices in order to ensure efficient utilization of existing and available resources. Majority of farmers inherited their land while some purchased, and other got it through contract.

Key Word: Resource, Efficiency, Profitability, Efficient Utilization, Processors

SC2019/AGE19

EFFECTS OF CLIMATE CHANGE ON TELFAIRIA OCCIDENTALIS (FLUTED GOURD) PRODUCTION IN AHOADA EAST LOCAL GOVERNMENT AREA, RIVERS STATE

Tasie, C.M. and Kalio, A.E.

Department of Agriculture (Agricultural Economics/Extension Unit), Ndele Campus
Ignatius Ajuru University of Education, Rumuolumeni, Port Harcourt, Rivers Statetasiechimezie@gmail.com +2348038726818

ABSTRACT

Climate change is a major factor in the low yield of Telfairia occidentalis in Ahoada local government. The importance of Telfairia occidentalis in our diet as a vegetable cannot be over emphasized. Farmers in Ahoada – East L.G.A depend greatly on Telfairia occidentalis for its nutritional importance, capacity to curb hidden hunger and generate income. Telfairia occidentalis production, however, is beset with myriads of constraints; notable among them is climate change. The study assessed the effects of climate change and adaptation measures used by Telfairia farmers in Ahoada – East L.G.A of Rivers State, Nigeria. Multi-stage sampling technique was used to select respondents for the study. Data were analyzed using simple descriptive statistics (percentage, frequency and mean). The result of the study showed that 63.3 percent of the respondents were female, majority were married (66.7 percent). A large proportion of the respondents had formal education (60 percent). Reduced yield of Telfairia occidentalis and reduction of family income were among the major effects of climate change on Telfairia occidentalis production. Diversifications (farm and non – farm) and mixed cropping were among the most widely used adaptation strategies by respondents. Therefore, it was recommended that relevant agencies (public and private) should make inputs (Telfairia occidentalis seedlings and pod, fertilizer as well as useful and relevant information) accessible to Telfairia occidentalis farmers, farmers should be encouraged to form co-operative societies that will help them pool resources together to fight more vigorously the challenges/threats of climate change, farmers are encouraged to diversify and go into other viable income generating activities (farm and non – farm) to cushion the effects of climate change, extension service should be strengthened through organizing adult education programmes for farmers to expose them to climate change strategies, programmes should be put in place to attract young people into farming, especially young school leavers and young graduates, affordable climate change adaptation technologies should be appropriated and developed for resource-poor farmers to adopt.

Key words: Climate change, effects, Telfairia Occidentalis Production, Adaptation strategies

OPENING ADDRESS AT THE 2ND ANNUAL NATIONAL CONFERENCE OF SOCIETY FOR AGRICULTURE, ENVIRONMENTAL RESOURCES AND MANAGEMENT (SAEREM)

BY DR. EDNA AKPAN (LOC CHAIRMAN)

With great delight and profound gratitude to God Almighty, on behalf of National Executive Council (NEC) I welcome you all to the 2nd Annual National Conference of Society for Agriculture and Environmental Resources Management (SAEREM), AKSU, 2019, with the theme "Climate Smart Agriculture, Food Security & Environmental Management Challenges in Nigeria". We wish to deeply appreciate the Vice Chancellor of this great university, Prof. Eno J. Ibanga for the approval of the LOC request to host this conference.

Society for Agriculture and Environmental Resources Management SAEREM, provides an integrated, quantitative and interdisciplinary approach to study the [environmental systems](#) and find solutions to resolve the problems associated with it for sustainability. To explore the issues, innovations and integrated approaches towards environmental sustainability. Again, it provides a unique platform for eminent Professionals, Scientists, Researchers, Academicians, and Entrepreneurs across the globe to participate and share their research advancements and new discoveries. Our conference is noted for high quality and original research articles with practical approach to solving problems of climate change confronting the emerging global society.

[Climate change](#) and agriculture are interrelated processes, both of which take place on a worldwide scale. [Global warming](#) is projected to have significant impacts on conditions affecting agriculture, including [temperature](#), [precipitation](#) and glacial run-off. These conditions determine the [carrying capacity](#) of the [biosphere](#) to produce enough [food](#) for the [human population](#) and domesticated animals. Rising [carbon dioxide](#) levels would also have effects, both detrimental and beneficial, on crop yields. Assessment of the effects of global climate changes on agriculture might help to properly anticipate and adapt farming to maximize [agricultural production](#).

Environmental problems are particularly challenging to address because they are difficult to see, diffused over time and space, it is hard to identify responsible parties, and the benefits for environmental degradation are concentrated and immediate, while benefits for environmental protection often dispersed and long-term. Countries are reluctant to take steps to limit environmental degradation when they feel that they may be making economic sacrifices that will benefit others and not themselves. That's crucial for two reasons. First, because the poorest are most vulnerable to the impact of climate change on ecosystems that provide food, shelter and livelihoods. And second, because healthy, well managed ecosystems can in turn protect people from at least some of the effects of climate change. If we look after the ecosystems, the ecosystems will look after us. [SAEREM](#), therefore, provides an integrated, quantitative and interdisciplinary approach to address the issues and find solutions to resolve the problems associated with it for sustainability.

At the same time, agriculture has been shown to produce significant effects on climate change, primarily through the production and release of [greenhouse gases](#) such as [carbon dioxide](#), [methane](#), and [nitrous oxide](#). In addition, agriculture that practices tillage, fertilization, and pesticide application also releases

ammonia, nitrate, phosphorus, and many other pesticides that affect air, water, and soil quality, as well as biodiversity. Agriculture also alters the Earth's land cover, which can change its ability to absorb or reflect heat and light, thus contributing to radiative forcing. Land use change such as deforestation and desertification, together with use of fossil fuels, are the major anthropogenic sources of carbon dioxide; agriculture itself is the major contributor to increasing methane and nitrous oxide concentrations in earth's atmosphere.

Finally, the exponential population increase in recent decades has increased the practice of agricultural land conversion to meet demand for food which in turn has increased the effects on the environment. The global population is still increasing and will never become stable. The conference is set give answers to vital questions such as, can food production, due to lower yields from global warming support the global population? What is the way forward? Can Climate Smart Agriculture, become a solution to Food Security & Environmental Management Challenges in Nigeria? Altering patterns of production and consumption is essential to reverse environmental degradation and combat climate change. So, we must reach a common understanding of the environmental challenges we face. And establish how overcoming these challenges could help sustain economic and social development in our country.

Thank you for your attention.

SC2019/AGE16

ASSESSMENT OF SOME CHEMICAL COMPOSITION AND PHYSICAL PROPERTIES IN PALM OIL MILL EFFLUENT DUMPSITES AND ITS IMPLICATION ON SOIL FERTILITY

Simeon Samuel¹, Ikpe Alkanimo² and Effiong Gregory¹

University of Uyo, Uyo

Department of Soil Science

08034357674 Simeons596@gmail.com

ABSTRACT

Field profile pits were dug in five selected palm oil mill effluent dumpsites in five villages in Mkpato Local Government Area of Akwa Ibom State. The study was aimed at assessing some chemical composition and physical properties. One (1) profile pits were dug in each of the five locations, samples were designated and collected at depths namely; 0 - 20, 20 - 40, 40 - 60, 60 - 80 and 80 - 100 cm, respectively. Data obtained were statistically analysed using descriptive statistics, analysis of variance and Duncan's multiple range test (DMRT). Results showed that effluent was strongly acidic in reaction with mean pH of 4.2 ± 0.13 while organic carbon content was $39.45 \pm 1.01 \text{ gkg}^{-1}$. The contents of total N was very high with mean of $30.44 \pm 0.61 \text{ gkg}^{-1}$, total P level was low averaging $10.42 \pm 0.53 \text{ mgkg}^{-1}$ and electrical conductivity was fairly high ($1.22 \pm 0.16 \text{ dSm}^{-1}$). Palm oil mill effluent soils also had the highest organic carbon content ($31.19 \pm 6.30 \text{ gkg}^{-1}$), total nitrogen ($1.35 \pm 0.30 \text{ gkg}^{-1}$) and exchangeable Ca ($8.85 \pm 2.50 \text{ cmolkg}^{-1}$), Mg ($2.95 \pm 0.80 \text{ cmolkg}^{-1}$) and K ($0.60 \pm 0.50 \text{ cmolkg}^{-1}$). It was therefore concluded that application of palm oil mill effluent has adequately increased soil macronutrients.

Keywords: Chemical composition, physical properties, fertility.

SC2019/AGE17

PERFORMANCE AND YIELD OF FLUTED PUMPKIN (TEFAIRIA OCCIDENTALIS (F.) HOOK) ON AN ULTISOL AMENDED WITH SOYBEAN MEAL

Ekwere, O. J., Akpan, E. A., and O. R. Akata.

Department of Crop Science, Akwalbom State University, Obio Akpa Campus, Oruk Anam, Nigeria.

Corresponding author; dr.okonekwere@yahoo.com, okonekwere@aksu.edu.ng

Phone: 234-8035492153 -8029943398.

ABSTRACT:

Field experiments were conducted during the 2016 and 2017 early cropping seasons at the Teaching and Research Farm of the Akwalbom State University, Obio Akpa Campus, to examine the effects of soybean meal (SBM) rates on the growth and yield of *Telfairia occidentalis*. The study involved soybean meal applied at five rates; 0, 2, 4, 6 & 8 (tons ha⁻¹). The test crop was *Telfairia occidentalis*. The experiment was laid out in a completely Randomised design (CRD), and replicated three times. Results indicated that SBM application exerted significant positive effects on all the growth and yield parameters of *Telfairia occidentalis* considered in the experiment. Most of the growth and yield parameters such as Vine length, number of vines, number of leaves, total foliage yield, and pods yield (tons ha⁻¹) continued to increase as the rate of SBM increased. Some reproductive parameters such as number of days to 50% flowering of the male plants, and number of aborted pods/plant decreased with increase in the rate of SBM application. Most of the growth and yield results obtained at SBM application rate of 6.0 tons ha⁻¹ length and number of vines, days to 50% flowering of the male plants, number and yield of pods (tons ha⁻¹) were not significantly different from those obtained at SBM application rate of 8.0 tons ha⁻¹, suggesting that SBM application rate of 6.0 tons ha⁻¹ may be adequate for optimum production and yield of *Telfairia occidentalis*. SBM application rate of 6.0 tons ha⁻¹ was therefore recommended for farmers in the study area.

Key words: Soybean meal, *Telfairia occidentalis*.

SC2019/AGE14

EFFECTS OF CARBON/NITROGEN RATIO AND PARTICLE SIZE OF RICE HUSK AND SAWDUST ON COMPOSTING OF POULTRY MANURE AND THE PERFORMANCE OF AMARANTHUSCRUENTUS ON SOILS DERIVED FROM COASTAL PLAIN SANDS IN AKWAIBOM STATE, NIGERIA

*Ekong, U. J.¹, N. M. John² and M. O. Eyong²¹ Department of Soil Science, Akwalbom State University² Department of Soil Science, University of CalabarCorresponding Author: ubongekong@yahoo.com. 08023613733

ABSTRACT:

Field experiments were conducted at the Akwalbom State University Teaching and Research Farm to evaluate the effects of carbon to nitrogen (C/N) ratios of three particle sizes (0.5, 1.0 and 2.0 mm) of rice husk (RH) and sawdust (SD) in four composting ratios (1:1, 1:4, 1:8 and 1:16) with poultry manure (BCW) on the performance of *Amaranthuscruentus*. Twenty five treatments: RH/BCW and SD/BCW composts and the control were applied in RCBD with four replications. Results revealed the C/N ratio of fresh SD (0.5 mm) to be 66:1, SD (1.0 mm) (55:1) and SD (2.0 mm) (43:1). The C/N ratio of RH (0.5 mm) was 16:1, RH (2.0 mm) was 11:1 and RH (1.0 mm) was 10:1 while BCW recorded 8:1. The C/N ratio of the composts ranged from 10:1 to 24:1 at four weeks after composting and 14:1 to 22:1 at 8 WAC. The applied composts showed significant ($P < 0.05$) differences in the growth and yield of *Amaranthuscruentus*. The highest *Amaranthus* heights at 8 WAT were obtained with application of RH/BCW (1:16) 0.5 mm (74 cm) and RH/BCW (1:8) 0.5 mm (72 cm) in 2016 and 2017 cropping seasons, respectively. The widest stem girths (10 cm) and (9.6 cm) were obtained with application of SD/BCW (1:16) 1.0 mm in 2016 season and RH/BCW (1:4) 0.5 mm in 2017 season, respectively. The broadest leaf areas (45.3 and 45.0 cm²) were obtained with application of SD/BCW (1:16) 1.0 mm and SD/BCW (1:16) 2.0 mm in 2016 and 2017 seasons, respectively. The heaviest fresh leaf yields (11.47 and 9.47 t/ha) were obtained in plots fertilized with RH/BCW (1:1) 0.5 mm composts in 2016 and 2017 seasons, respectively. Application of composts to *Amaranthuscruentus* significantly ($P < 0.05$) improved yields in both seasons.

Keywords: Carbon/nitrogen ratio, particle size, composts, *Amaranthuscruentus* performance

SC2019/AGE15

STRATEGIES TO REDUCE SOCIAL VULNERABILITY OF RURAL DWELLERS TO CLIMATE VARIATION IN AKWA IBOM STATE, NIGERIA

By

Solomon, V. A and Akpe, M. F

Department of Agricultural Economics and Extension

University of Uyo, Uyo

Email: valasolomon@yahoo.com

ABSTRACT

The study determined the strategies for reducing social vulnerability to climate variability in the rural areas of Akwa Ibom State. Specifically, the study focused on the socio – economic characteristics of rural dwellers and identified measures to reduce social vulnerability among rural dwellers. It was hypothesized that (1) there was no significant difference in the social vulnerability of men and women in the rural areas of Akwa Ibom State and (2) there was no difference in the social vulnerability of coastal and upland respondents. In order to achieve the above objectives, data were collected from 300 households and analyzed using both descriptive and inferential statistical tools. Result of data analysis revealed that 52.7% of the respondents were women, most of the respondents (80%) were between the ages of 60-80 years and majority (64%) had no formal education. Construction of embankment, flood storage reservoirs, dams and bridges and opening of gutters were the most significant strategies to reduce flood from the respondents' perspective; and these were linked to location of building of respondents. The study revealed that there exist significant differences in social vulnerability between males and females at 5% level. This implies that gender, which is a socially constructed definition of masculinity and femininity with its attendant roles, expectations and privileges, is an important factor in determining the social vulnerability of individuals in the study area. Also, the test result of the difference in social vulnerability between coastal and upland areas in Akwa Ibom State shows that a significant difference exists at 5% level. The study recommends that, policy makers and development partners should collaborate with agricultural extension workers, meteorological officers and community – based agents to create awareness on climate information, forecast and dissemination through available and accessible communication methods such as radio using local dialect, town criers, community workshop/seminars, etc. to improve community understanding of climate variation and enhance their adaptive capacities.

Key words: Climate Variability, Social Vulnerability, Rural Dwellers

LEAD PRESENTATION BY PROF. OKON A. ANSA
AT THE 2nd ANNUAL NATIONAL CONFERENCE OF SOCIETY FOR AGRICULTURE,
ENVIRONMENTAL RESOURCE AND MANAGEMENT

CLIMATE CHANGE, PLANT DISEASES AND THE CHALLENGE OF FOOD SECURITY

Okon A Ansa¹

Former Deputy Vice Chancellor

University of Uyo

Adjunct Professor, Department of Crop Science, Akwa Ibom State University

INTRODUCTION

DEFINITION

Climate change refers to a change in the state of the climate that can be identified (using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC, 2007). The United Nations Framework Convention on Climate Change (UNFCCC), defines climate change as a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

GLOBAL WARMING AND THE GREENHOUSE EFFECT

Climate change is caused by global warming which in itself is caused by the greenhouse effect. The phenomena of global warming and the precursor greenhouse effect is illustrated in fig. 1. Approximately half of radiation from the sun, reaches the earth and is absorbed, warming the earth in the process. Some of this heat from the earth is emitted as infrared radiation which is absorbed by greenhouse gases and the clouds and reemitted in all directions warming the lower atmosphere and the earth's surface. This warming effect is known as the greenhouse effect.

THE DEVELOPMENT OF THE GREEN HOUSE EFFECT
THE EARTH'S ATMOSPHERE

The atmosphere surrounding the earth is divided into 4 layers (fig. 2) which are characterized by differences in chemical composition, which in turn produce differences in temperature in the different layers. The 4 layers of the atmosphere are: the troposphere, the stratosphere, the mesosphere and the thermosphere. The troposphere is the layer closest to the earth and exists up to about 10km above the earth. It is about 80% of the mass of the atmosphere and has a high density of air. The stratosphere rises to about 50km above the earth and heats up mainly because of the

absorption of ultra-violet (UV) radiation by ozone in this layer. The mesosphere rises up to 80km above the earth's surface where temperatures can reach 190K. The mesosphere is the coldest part of the atmosphere. The thermosphere rises up to 100km above the earth and its temperatures can reach up to 2000°C because of the absorption of shortwave UV-radiation by few molecules of molecular oxygen and nitrogen that are found in this zone.

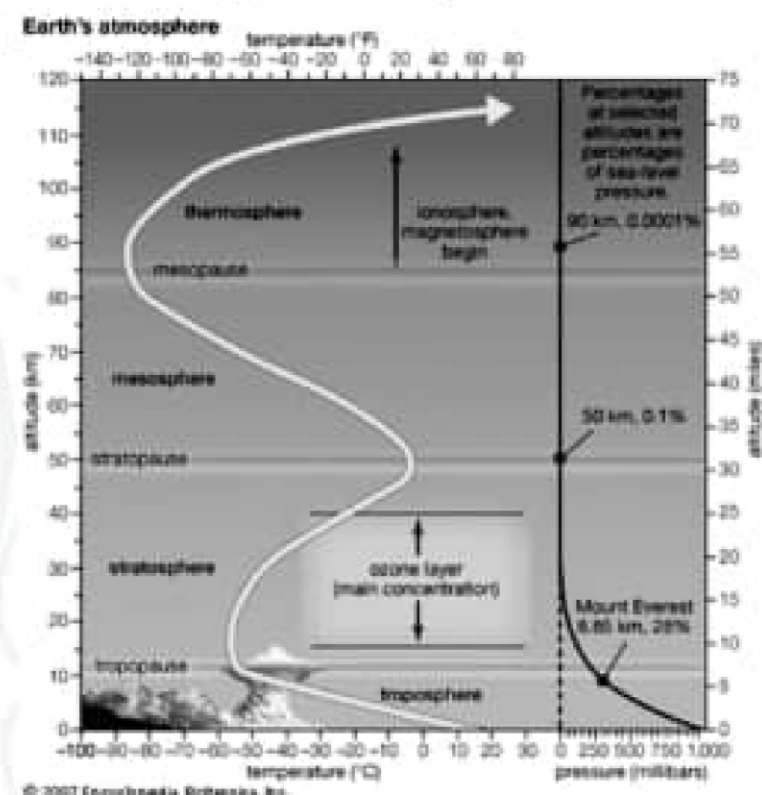


FIG. 2: LAYERS OF THE EARTH'S ATMOSPHERE

The gaseous composition of the lower atmosphere is shown in Table 1. The most important of these gases are Nitrogen, Oxygen, Water vapour, Carbon dioxide, Methane, Hydrogen, Nitrous oxide and Ozone. Nitrogen and Oxygen make up 99% of the gaseous composition. Nitrogen is important for plant nutrition while Oxygen is important in photosynthesis and respiration.

Gas Name	Chemical formula	Percent volume
Nitrogen	N ₂	78.08
*Oxygen	O ₂	20.95
Water	H ₂ O	0-4
Argon	Ar	0.93
*Carbon dioxide	CO ₂	0.0360
Neon	Ne	0.0018
Helium	He	0.0005
*Methane	CH ₄	0.00017
Hydrogen	H ₂	0.00005
*Nitrous Oxide	N ₂ O	0.00003
*Ozone	O ₃	0.000004
*Halocarbons	CFCl ₃ , CF ₂ Cl ₂	0.00000008

Variable gases

Table 1. Average composition of the atmosphere up to 25km (Source: University of Oslo, 2009)

SC2019/AGE12

YAM BASED FARMERS' RESPONSE TO CHALLENGES OF CLIMATE SMART AGRICULTURE IN KOGI STATE, NIGERIA

By
Simpa Ondeku James
 email: jamesimpa2014@gmail.com
 GSM No: 08066316605
 Department of Agricultural Technology
 The Federal Polytechnic, Nasarawa, Nigeria

ABSTRACT

The study examined the response of yam based farmers to challenges of Climate Smart Agriculture in Kogi State, Nigeria. Agricultural Development Project (ADP) administrative Zoning was adopted for the study. A multi-stage random sampling technique was used for data collection. Structured questionnaires were used to collect data on socio-economic variables of the farmers, effects of climate change on yam production, coping strategies and limitations to adaptation of the coping strategies. Descriptive statistics were used to analyze the data collected. The result shows that the yam farmers are smallholders, but young and well experienced. The result also indicates that the majority of the farmers are aware of the effects of climate change and as such adopt various coping strategies, but not without limitations. The study recommended improvement on extension services for dissemination of information on Climate Smart Agriculture (CSA), provision of incentives, compensation for loss of revenue and training and re-training of yam based farmers on CSA.

Keywords: Climate Smart Agriculture, climate change, Coping Strategies

SC2019/AGE13

EFFECTS OF GRAMOXONE HERBICIDE ON SOIL MICROBIAL POPULATION AT OBIO AKPA, SOUTHEAST, NIGERIA

Udumoh, I.D.J., Uduak, I.G. and Bassey, D.E

Department of Soil Science, Faculty of Agriculture Akwa Ibom State University
 Correspondence: itoroudumoh@gmail.com (+234 8025448640)

ABSTRACT

This study was conducted to determine the effects of Gramoxone herbicide on microbial populations in the soil. The experiment was laid out using Randomized Complete Block Design containing four (4) levels (0, 3, 4 and 5L/ha) of Gramaxone with three (3) replications and each replication contained four (4) plots giving a total of twelve (12) plots of 5m x 5m each. Samples were taken before and after depths and analyzed by routine methods. Treatment was applied, sample were taken before and after treatment applications. Results show that total heterotrophic bacterial count increased on plots that received 0 L/ha rate of treatment by 70%. While 3, 4 and 5L/ha rates decreased by THBC 55% and 65 respectively. Total heterotrophic fungal count increased only at 0L/ha by 20% while 3L/ha, 4L/ha, and 5L/ha. Rate decrease by 74%, 50% and 53% respectively. Bacteria isolated from the plots before the experiment were bacillus spp and staphylococcus aureus, after treatment application were Bacillus spp, staphylococcus spp; pseudomonas and achromaycates spp. Fungal isolated from the plots before the experiment were aspergillus niger and mould. After the treatment applications; aspergillus niger, mould and aspergillus flavus. The implications of these finding suggest that the application of herbicides should be understood in order to preserve soil micro-organism.

Keywords: Herbicide, microbial population, soil properties

SC2019/AGE10

CLIMATE CHANGE IMPACT ON TROPICAL FOREST ECOSYSTEM AND BIODIVERSITY: THE CASE OF SUB-SAHARAN AFRICA

Adeyemi T.O.A, Agboje I, Osazuwa D.K and Oripelaye O.S;
Forestry Research Institute of Nigeria, Moist Forest Research Station,
P.O Box 2444, Benin City

Corresponding author email: adedotunadeyemi@gmail.com ;
phone no: 08034991475

ABSTRACT

The tropical ecosystem is the richest ecosystem in the world. It is characterized by dense forests, thick vegetation, rich mangroves and extensive water bodies. Climate change affects the tropical ecosystem and the services it renders, that surrounding communities are largely dependent upon, thereby threatening development and economic stability. Local climate variability can have consequences for the social, economic, and personal conditions, and by extension influence the lives and livelihoods of people in this region. Scientists estimate that more than half of the world's plant and animal species live in tropical rainforest region and yet they cover 6% of the world's surface. The sub-Saharan Africa is one of such tropical ecosystem where the effects of climate change are particularly being felt because of over reliance and overexploitation of its natural capitals. This paper therefore takes a critical look at the existing and potential dangers posed by the changing climate on the tropical forest ecosystem in sub-Saharan Africa.

Keywords: Tropical ecosystem, sub-Saharan Africa, Climate change, rainforest

SC2019/AGE11

EFFECTS OF URBAN CRIME ON THE ECONOMIC DEVELOPMENT OF ORON URBAN, AKWA IBOM STATE, NIGERIA

¹Beulah I. Ofem, ²Bassey E. Antai and ³Ekong Daniel

^{1,2,3}Department of Urban and Regional Planning, University of Uyo, Uyo
beulahikpi@yahoo.com 08023180512

¹General Studies, Akwa Ibom State University, Obio Akpa

ABSTRACT

The aim of this paper was to assess the effects of urban crimes on economic development of Oron urban, Akwa Ibom State, Nigeria. A survey research design was adopted to assess the phenomenon. The study area was divided into nine (9) study zones. Data generated were both qualitative and quantitative using structured questionnaire. These were data on 24 parameters relating to economic development (people/ place based economic development); and 12 parameters relating to urban crimes from the Nigerian Police Force (NPF) reports and published materials. Factor Analysis (FA) technique was applied to collapse to a few factors. Both urban crimes and economic development were statistically correlated and regressed using Pearson's Products Moment Correlation (PPMC) and Multiple Regression Analysis and this yielded a correlation (R) of .765 representing 58.5% coefficient of determination at 0.05 (2 tailed test) significant level. This revealed a positive correlation between urban crime and economic development of Oron urban. Based on the findings, it is recommended that improvements on people- based and place- based economic development strategies combine with adequate mobilization of equipped security agents will reduce the desire of criminals to commit crimes in Oron urban.

Keywords: Urban, Crime, Economic, Development, Security

Lightning can cause Nitrogen and Oxygen to combine to form Nitrogen oxides which are very reactive.

Water vapour is important because:

- It redistributes heat energy through latent heat exchange via evaporation and condensation
- Its condensation creates precipitation that falls on the earth's surface and in the process provides water for plants and animals
- It helps warm the earth's atmosphere through the Greenhouse

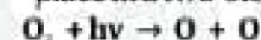
Carbon dioxide is important because it is required for the life processes of photosynthesis and respiration.

Ozone

Ozone is found mainly in the stratosphere and it is important because it absorbs most of the harmful UV-radiation from the sun. It also acts as a greenhouse gas.

Formation of Ozone

Molecular oxygen is very stable and is present in large amounts (21% by volume) in the atmosphere. Ozone can be formed when atomic oxygen reacts with ordinary molecular oxygen. The reaction takes place in a two-step process according to the following reaction scheme:



hv represents photons of UV radiation

M is a reaction partner like Nitrogen molecule which acts as a catalyst and is not used or modified

Ozone may also be formed in the troposphere when oxygen is released from nitrogen dioxide (NO₂) by photolysis. The energy required is less than the energy required for the splitting of the oxygen molecule. In large cities with a lot of traffic photochemical smog (containing e.g. NO, NO₂, and ozone) is formed. A smog episode often starts with the release of NO-gas from cars or generators. The gas is then oxidized to NO₂. When the NO₂-molecule is exposed to sunlight an oxygen atom may be released and ozone is formed. The process can be described by the following reaction sequence:



The halogens (chlorine, bromine and fluorine and iodine) are involved in the formation and destruction of ozone.

Other compounds involved in the destruction of ozone are the nitrogen oxides, water radicals, halogens and halocarbons in the atmosphere

Radiation from the sun plays an important part in the formation and destruction of ozone.

Ozone is important because it protects life on earth from the harmful radiation from the sun (University of Oslo, 2009).

CONSEQUENCES OF THE GREENHOUSE EFFECT

According to IPCC (2014), the warming of the climate is unequivocal. It noted that each of the last three decades have been progressively warmer than the preceding decade since 1850 and that the period from 1983 to 2012 have been the warmest 30-year period of the last 1400 years. The global temperature over the earth's surface has increased by 0.85°C from 1880 to 2012. Also, over the period 1901 - 2010, global mean sea level rose by 0.19m. Anthropogenic greenhouse gases (GHGs) and other factors have been implicated and appear likely to be the cause of the increased warming of the earth's surface. Emissions of these anthropogenic GHGs have been implicated in the large increases in the atmospheric concentrations of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). About 40% of these emissions have remained in the atmosphere while the rest was removed from the atmosphere and stored on land (in plants and soils) and in the ocean. The ocean has absorbed about 30% of the emitted anthropogenic CO₂, causing ocean acidification. About half of the anthropogenic

CO₂ emissions between 1750 and 2011 have occurred in the last 40 years. Emissions of CO₂ from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution accounting for the increase during the period 2000 to 2010. Globally, population size, economic activity, lifestyle, energy use, land-use patterns, technology and climate policy are the most important drivers of increases in CO₂ emissions from fossil fuel combustion.

Climate change was projected to undermine food security (IPCC, 2014). Due to projected climate change by the mid-21st century and beyond, global marine species redistribution and marine biodiversity reduction in sensitive regions was expected to affect the sustained provision of fisheries. For wheat, rice and maize in tropical and temperate regions, climate change without adaptation was projected to negatively impact production. Global temperature increases of about 4°C or more above late 20th century levels, combined with increasing food demand, was expected to pose large risks to food security globally. Climate change was projected to reduce renewable surface water and groundwater resources in most dry subtropical regions, intensifying competition for water among sectors. An example is the Lake Chad that is gradually disappearing as shown in fig. 3.

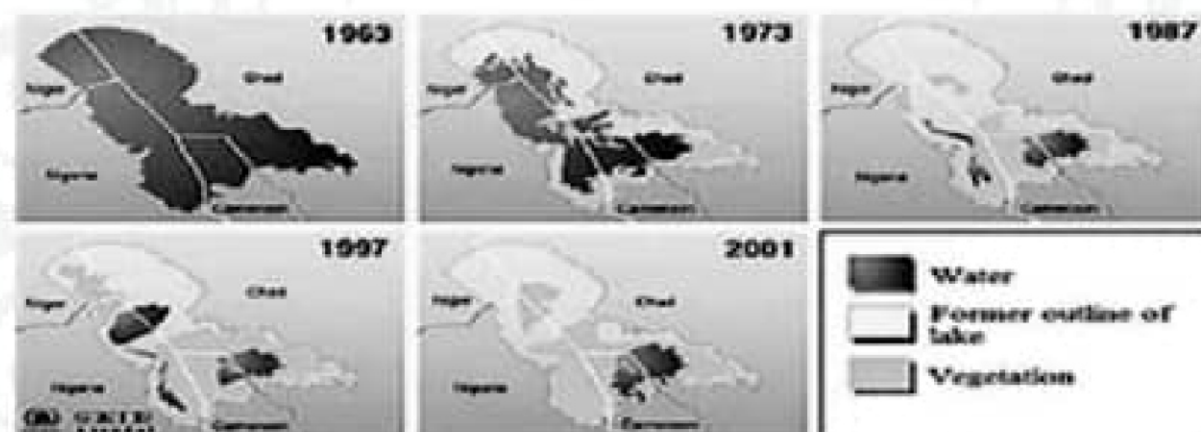


Fig. 3 The disappearing Lake Chad (1963-2001)

Source: www.researchgate.org

IPCC (2007) had stated as follows:

- Global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70% between 1970 and 2004
- Carbon dioxide (CO₂) is the most important anthropogenic GHG. Its annual emissions grew by about 80% between 1970 and 2004.
- Global atmospheric concentrations of CO₂, methane (CH₄) and nitrous oxide (N₂O) have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years
- Atmospheric concentrations of CO₂ (379ppm) and CH₄ (1774ppb) in 2005 exceed by far the natural range over the last 650,000 years.
- Global increases in CO₂ concentrations are due primarily to fossil fuel use, with land-use change providing another significant but smaller contribution. It is very likely that the observed increase in CH₄ concentration is predominantly due to agriculture and fossil fuel use
- Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations.

SC2019/AGE08

CLIMATE CHANGE: CAUSES AND IMPLICATIONS FOR DEVELOPING ECONOMIES

Adeyemi T.O.A, Fakolade A.N, Folorunsho W.O and Igboanugo C.S

Forestry Research Institute of Nigeria, Moist Forest Research Station, P.O Box 2444, Benin City

Corresponding author phone no: 08034991475

Corresponding author email: adedotunadeyemi@gmail.com

ABSTRACT

Climate change refers to a change in weather trends, which includes rising temperatures, lowering temperature, and changes in precipitation. These changes are caused mainly by anthropogenic and sometimes natural factors. Climate change impact can be harmful both on the environment and human. Several studies have identified the developing countries of the world as extremely vulnerable to climate change due to the fact that economies of these countries depend largely on climate-sensitive sectors e.g. agriculture, fisheries, and pastoralism. Furthermore, these countries are at the center of development and any negative phenomenon like climate change can hamper their development. To this end, this paper takes a look at the causes of climate change and its implications on fragile cum developing economies of the world. Solutions such as adaptation and mitigation measures are however suggested to arrest this phenomenon.

Keywords: Climate change, environment, developing countries, adaptation, mitigation

SC2019/AGE09

EFFECTS OF ORGANIC MANURES ON SOIL CHARACTERISTICS AND PERFORMANCE OF COCOYAM (XANTHOSOMAS SPP) ON ACID SANDS OF SOUTHEASTERN NIGERIA

AKPAN, E. A¹, AND UFOT, U. O.²

¹Department of Crop Science, Akwa Ibom State University, Obio Akpa Campus

²Department of Soil Science, Akwa Ibom State University, Obio Akpa Campus

Correspondence Author: ednaakpan@yahoo.com

ABSTRACT

Field experiment was conducted in Ikot Udoidem, Oruk Anam Area of Akwa Ibom State, Southeastern Nigeria in 2017/2018 cropping season to examine the effects of organic manure on soil characteristics and performance of cocoyam (*Xanthosomas spp*) using Randomized Complex Block Design (RCBD), four treatments replicated 3 times were used at the rate of 7.5 tons/ha. These include T₀ (control), T₁ (swine manure), T₂ (poultry manure) and T₃ (Goat manure). Results showed that the application of organic manure (Goat, Swine and Poultry) at harvest (9 WAP) significantly ($p < 0.05$) increased soil organic matter, pH, Av.P, Exch. Ca, Mg and ECEC exception of soil textural class. The soil organic matter increased by 138% in goat manure (GM), 126% in swine manure (SM) and 119 % in poultry manure (PM) compared with the control. The pH [H₂O] values for GM, SM and PM were 5.20, 5.49, 5.41 compared with the least value (5.15) recorded in control. The exchangeable calcium values were GM (4.03 cmol/kg), SM (2.60 cmol/kg), PM (2.59 cmol/kg) compared with the control which recorded the least (2.58 cmol/kg). The application of the organic manure increased the growth characteristics and yield attributes of the tested crop significantly ($p > 0.05$). The mean plant heights after harvest (9 WAP) were 49.40 cm in the SM, 40.55 cm (PM), 48.60 cm (GM) and the least 23.40 cm in the control. It was also observed that plots applied with organic manure out-yielded control with mean values ranging from 23.00 – 27.03 tons/ha relative to 19.23 tons/ha in the control plot. The magnitude of the yield result were as follows: Goat Manure (GM) > Swine Manure (SM) > Poultry Manure (PM) > control. Result of the research findings have showed that application of organic manure improves the soil characteristics as well as the yield of cocoyam in soils of Southeastern Nigeria.

Key-words: Cocoyam, Soil Characteristics, Performance.

SC2019/AGE06

ECONOMICS OF OFF- SEASON CUCUMBER PRODUCTION IN UZO-UWANI
LOCAL GOVERNMENT AREA OF ENUGU STATE

Okorie, O. J., Umaru, I. I., Ibe, J. C., Awoyelu, F. and Uchua, T. D.

Department of Agricultural Economics, University of Nigeria, Nsukka

Correspondence address: oguejioforokorie@unn.edu.ng, 07035232729

ABSTRACT

The study analyzed the economics of off- season cucumber production in Uzo-uwani L.G.A of Enugu State. Primary data were collected using structured questionnaires administered to 70 (seventy) cucumber farmers generated using multi-stage sampling technique. Data were analyzed using descriptive and inferential statistics such as; Frequency, percentages, multiple regression analysis and 4- point Likert scale. The results showed that majority (54.3%) of the farmers were females, had age of 40 years, 5 years farming experience, farm size of 0.3 ha with majority (88.6%) having a minimum of primary education. Average yield was 5 tons per season and a profit of ₦68,151.00 which shows that at this level of production (70% use small irrigation pump), revenue outweighs costs. The profit function analysis revealed that the combined effects of the variable items in profit function explained about 81.5% of the variation in the profit variable. Output price was positive and significant on profit at 1%. Cost of land, seed and labour were significant at 1% and had negative effect on profit. Major constraints to the off-season production of cucumber in the study area includes; lack of access to credit, high cost of inputs, pests and diseases. The study recommends that youths be encouraged to invest in the enterprise; Government provide improved seed varieties and other incentives like irrigation equipment; Extension agents be encouraged to disseminate research outcomes to the farmers and Stake holders should help farmers increase their capital base through grants and credits

Keywords: Cucumber production, Economic analysis, Off- season, Uzo-uwani

SC2019/AGE07

EFFECTS OF TILLAGE METHODS ON SOIL PROPERTIES AND PERFORMANCE OF AFRICAN YAM BEANS
(SPHENOSTYLIS STENOCARPA) IN OBIO-AKPA, AKWA IBOM STATE, NIGERIA.Akpan, E. A¹, and Ufot, U. O.²¹DEPARTMENT OF CROP SCIENCE, AKWA IBOM STATE UNIVERSITY, OBIO AKPA CAMPUS²DEPARTMENT OF SOIL SCIENCE, AKWA IBOM STATE UNIVERSITY, OBIO AKPA CAMPUSCorrespondence Author: ednaakpan@yahoo.com

ABSTRACT

In order to select the most appropriate tillage method that causes least soil degradation and enhances performance of African yam beans (*Sphenostylis stenocarpa*), field study was conducted at the Akwa Ibom State University Teaching and Research Farm, Obio Akpa during 2017/2018 cropping season. The experiment was laid out in a field using Randomized Complete Block Design (RCBD) with 4 blocks. Each block had 4 treatments (No tillage – NT, Bed tillage – BT, Mound tillage – MT and Ridge tillage – RT). An improved variety of African bean was sown directly in each of the blocks. Surface soil was analysed and selected physico-chemical properties determined. Growth and yield of African yam bean were evaluated. MT gave least Bulk density followed by RT, BT and NT. Tillage did not influence soil chemical properties significantly ($P < 0.05$). The growth parameters showed significant difference at ($p < 0.05$). The highest values of growth parameters were in MT followed by RT, BT and NT gave the least values. Yield parameters at 16WAP were all significantly ($p < 0.05$) affected by tillage methods and was in the order MT > RT > BT > NT. On the average, weight of fresh seeds/pod were 7.75, 7.50, 7.45 and 5.25g for MT, RT, BT and NT respectively.

Key-words: African Yam Bean, Tillage, Performance.

The projected impact of these temperature changes in Africa were:

- By 2020, between 75 and 250 million of people are projected to be exposed to increased water stress due to climate change.
- By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%.
- Agricultural production, including access to food, in many African countries is projected to be severely compromised.
- This would further adversely affect food security and exacerbate malnutrition.
- Towards the end of the 21st century, projected sea level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5 to 10% of Gross Domestic Product (GDP).
- By 2080, an increase of 5 to 8% of arid and semi-arid land in Africa is projected under a range of climate scenarios

The projected impact on agriculture, forestry and the ecosystem were:

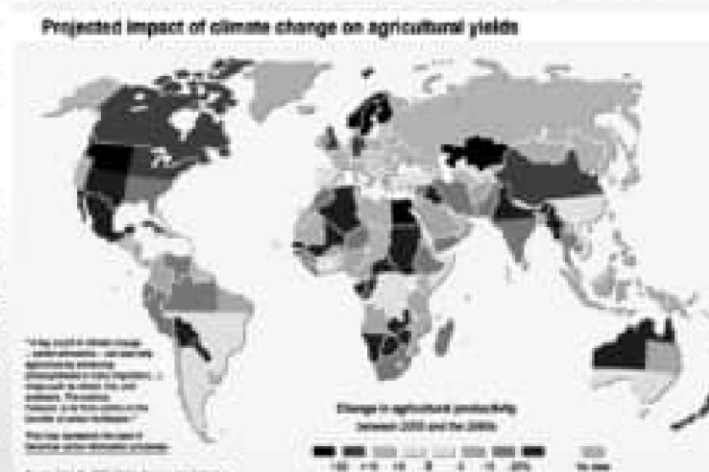
- Decreased yields in warmer environments
- Increased insect outbreaks
- Reduced yields in warmer regions due to heat stress
- Increased danger of wildfires
- Soil erosion
- Inability of cultivate land due to waterlogging
- Land degradation
- Crop failure, crop damage and lower yields
- Increased death of livestock
- Uprooting of trees
- Salinization of fresh water systems, estuaries and irrigation water

FOOD SECURITY

The World Food Summit of 1996 defined *food security* as existing when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life.

Food production is highly sensitive to climate change mainly with respect to rainfall and temperature which are the main factors that determine the global distribution of food crops. Climate change leads not only to greater variability in rainfall and temperature but increase in the likelihood of occurrence of extreme events like drought, floods and heat waves. A changing climate is associated with increased threats to food safety, post-harvest losses and pressure from invasive species, pests and diseases. Already heightened by increased global movement of goods and people, a warming climate is likely to increase the incidence and geographic spread of human, animal and plant diseases. Rainfed and pastoral agriculture are very susceptible to changes in climate and in some locations global warming may cause flooding and in other locations may make the drought situation more acute. Global warming may also lead to shorter growing seasons in Africa and as shown in fig. 4, will have an adverse effect on food production in the continent (Beddington et al., 2012).

Fig. 4 Projected impact of climate change on agricultural yields



Changes in atmospheric CO₂ levels and temperature and the frequency of occurrence of extreme weather conditions are likely to have significant effect on yield of crops.

CLIMATE CHANGE AND PLANT DISEASES

Plant diseases are of great importance to humans because of their negative impact resulting from the losses they cause of plants and products derived from plants. Losses may be in the form of direct loss of yield of crops or of products that man utilizes for food, clothing, furniture and environmental aesthetics, as follows:

- Direct loss of yield of crops can lead to extreme conditions like mass starvation as occurred in Ireland in 1845 – 1846.
- Direct loss of yield may lead to massive losses of national income by countries in cases where agricultural produce constitutes the major foreign exchange earner like with Groundnuts and Cocoa in Nigeria.
- Diseases attacking trees may impact the type of industries that can exist in a country.
- Losses may be due to the poisoning effect of plant pathogens on plant produce. For example, cereal and legume grains and other farm products are often contaminated by secondary metabolites secreted by fungi. These metabolites are often toxic and are known as mycotoxins. In Nigeria, the major mycotoxin contaminating agricultural produce and by-products are Aflatoxins produced by *Aspergillus spp.*, Fumonisin produced by *Fusarium spp.*, Trichothecenes also produced by *Fusarium spp.* and Ochratoxins produced by various species of *Aspergillus* and *Penicillium*. (Adejumo and Adejoro, 2014).

According to the disease triangle (fig 5), for disease to occur, three factors of susceptible host, causal agent and a favourable environment must occur simultaneously. The major factors of the environment that are important in disease development are temperature and rainfall (amount, timing and source), wind and light intensity or shade. Other environmental factors relate to the soil (drainage, soil type, pH, fertility and nature of fertilizer applied), and to nature of chemicals (insecticides, fungicides and herbicides) used on the crop.

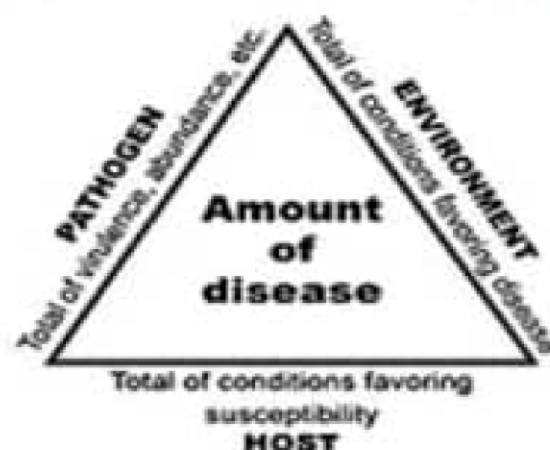


Fig.5 The Disease Triangle

EFFECT OF ENVIRONMENT ON PLANT DISEASE

Changes in environmental conditions affect the level of losses because environment exerts significant effects on pathogens and their host plants. Changes associated with global warming such as elevated temperatures, increased levels of CO₂ and Ozone can affect the incidence and severity of diseases in plants. I will examine the effects of these major elements of climate change on some plant pathogens and the diseases they cause.

TREND AND DETERMINANTS OF DEFORESTATION IN AKWA IBOM STATE

¹Nelson, I. U., ²Jacob, D. E., ³Ityavyar, A. J. and ⁴Eniang, E. A.
¹Department of Forestry and Wildlife, University of Uyo, Nigeria
²Federal University of Agriculture, Makurdi, Benue State
³Correspondence author email: danieljacob@uniuyo.edu.ng

ABSTRACT

The study examined deforestation rate trend and perception of challenges facing it in Akwa Ibom State, Nigeria using qualitative and quantitative approaches. The data were obtained using structured questionnaire, oral interviews and direct observation. Data collected were analyzed using descriptive and inferential statistics including remote sensing and least square regression. The results obtained indicate that within 1986 – 2016, the forest cover trend in Akwa Ibom State followed a downward trend with a trend line of $y = 2991.5x + 6E+06$ with a strong correlation (0.9997 or 99.97%) between the forest cover coverage and years. Also, between 1986 and 2016, the state lost a total of 86726.84ha of forest cover implying an annual loss of 2890.89ha. The regression analysis employed in the study showed a coefficient of multiple determination (R^2) of 0.618 with an F-Statistic of 2.77 ($p < 0.10$). Among the regressors included in the model showed that afforestation rate was significant at $p < 0.01$, while number of divisions and amount of money released for forestry development were significant at $p < 0.05$ respectively. However, regressors such as target revenue, and revenue generation were not significant ($p < 0.05$). The study concluded that the deforestation rate in high and modalities such as funding and increased afforestation should be encouraged to reduce the rate of deforestation in the state.

Keywords: Deforestation rate, Remote sensing, Afforestation, Staff strength, Akwa Ibom State

EVALUATION OF CHARACTER ASSOCIATION AND PATH ANALYSIS ON GRAIN YIELD IN MAIZE (ZEA MAYS L.) IN UYO, SOUTHEASTERN NIGERIA.

Udo, Hannah I., Bassey, E. E., and Harry, G. I.
 Department of Crop Science, Faculty of Agriculture
 University of Uyo, Akwa Ibom State, Nigeria
 Corresponding author: hanyjesu@gmail.com 08068401934

ABSTRACT

A study was undertaken in early and late cropping seasons of 2017 to evaluate the character association and path analysis in maize in Uyo, Southeastern Nigeria. The experiment was laid out in a randomized complete block design with four replications. Treatments were Oba Super 1, Oba Super 2, Oba Super 48, Oba Super 98, B.White, Uweb and Ukai. Characters studied were maize establishment (%), maize height (cm), number of leaves, leaf area (cm²), length of cob (cm), circumference of cob (cm), number of rows per cob, number of kernels per row, fresh weight of 100 kernels (cm), dry weight of 100 kernels (cm) and grain yield (tha⁻¹). Results showed that Oba Super 2 had the highest plant establishment (90.03), circumference of cob (12.16), length of cob (17.29) and number of kernels per cob (28.53). B.White was superior for leaf area, fresh weight of 100 kernels and dry weight of 100 kernels, while Oba Super 1 was superior in height, number of leaves and number of kernels per row. Correlation coefficients among agronomic traits indicated that grain yield was positively and significantly associated with number of kernels per row (0.864), length of cob (0.604), number of rows per cob (0.512), fresh weight of 100 kernels (0.710), leaf area (0.732) and dry weight of 100 kernels (0.940). Leaf area (0.2786), plant height (0.1484), number of leaves (0.3412), length of cob (0.1586), number of rows per cob (0.3063), fresh weight of 100 kernels (0.0462) and number of kernels per row (0.3148) had high positive direct effects on grain yield.

Keywords: Zea mays, morphological characters, grain yield, correlation and path analysis.

SC2019/AGE03

OGONI WOMEN FARMERS PARTICIPATION IN AGRICULTURAL PRODUCTION IN THE REMEDIATED OIL SPILL LAND

¹Etukudoh, Ndarake Emmanuel, ²Nne Fortune Okah, ³Utibe Ukana Usendu⁴Gbarabe Roland and ⁵Payou Tugwell Ogboin¹Department of Soil Sciences, Faculty of Agriculture, Obio Akpa, Oruk Anam LGA, Nigeria.²Department of Rural Sociology and Extension, College of Agricultural Economics, Rural Sociology and Extension, Michael Okpara University Of Agriculture, Umudike³Department of Agric. Economic and Extension, North West University, Mafikeng Campus South Africa.⁴Department of Agronomy (Crop Science), North West University, Mafikeng Campus South Africa.

ABSTRACT

The extent of Ogoni women farmers participation in agricultural production in the remediated oil spill land was investigated. Results show that most of Ogoni women Farmers were within the age range of middle aged 41-50 years. This implies that the artisanal fishers were relatively young and active. This study also revealed that 10.38, 15.33, 24.34 and 7.78% (representing 44, 65, 99 and 33 (10.38, 15.33, 24.3 and 7.38%) in Eleme, Gokhana, Khana and Tai, respectively were married. Also the study findings showed that 34.69, 16.38, 21, 49.21% and 21.43, 7.76, 6.80, 4.76% had a secondary education and tertiary education Eleme, Gokhana, Khana and Tai, respectively. Majority of respondents cultivated less 5 ha. This can have an impact on farming techniques.

The results shows that crude oil spillage Posed health hazard and environmental risk, reduced arable farm land, reduced farmer's income due to low crop yields, exposed the area/ecosystem to potential of pollution, destroyed vegetation and aquatic lives, destroyed vegetation and aquatic lives, cumulative impact of oil spillage led to lower standard of living due to low agricultural yields, causing farmers to abandoned or relocation their farm land. These effects were very severe and 100% responds were recorded while causing of germination failure, reducing farmer's income due to low crop yields, making of farmers to spent too much on food, reducing of children enrolment in schools and less spending on education of children and more spending of money on cultivation were not very severe being less than 100% responds. This therefore mean that low crop yield due to oil spill had an impudence on farmers income. This result further accentuated the negative impact of oil spill on crop production as farm income is depressed due to the twin effects of land degradation and poor plant growth. Ieme, Gokhana, Khana and in Tai local Government, respectively. Majority of farmers are subsistence farmers. No farmers was involved in Dry and irrigated Farming, Diversified Farming, [Forestry Products](#), [Forestry Products](#), [Citrus](#) and [Nursery](#). This was followed by commercial farming. Due sudden oil spill time did not allowed women farmers to diversify into other sources of income generating activities to improve household income. Many Factors influenced Women participation in farming operation in the remediated areas. However, Packing, Shipping, Regulations and Insurance. Land Ownership system did not affect farmers in Eleme and Gokhana

Keywords: Remediated, Ogoniland, Niger Delta, Crude oil Spills

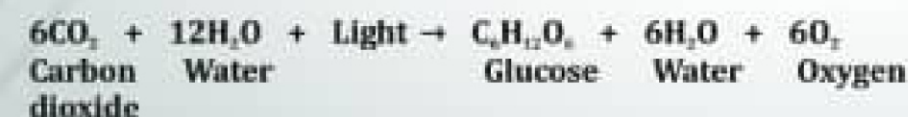
EFFECT OF ELEVATED TEMPERATURES

- Yanez- Lopez et. al. (2012) reviewed the effect of climate change on plant diseases and noted that due to changes in temperature and precipitation regimes, climate change may alter the growth stage, development rate and pathogenicity of infectious agents, and the physiology and resistance of the host plant. They suggested that sunlight affects pathogens due to the accumulation of phytoalexins or protective pigments in host tissue and a change in temperature may favor the development of different inactive pathogens, which could induce an epidemic. Increase in temperatures with sufficient soil moisture may increase evapotranspiration resulting in humid microclimate in crop and may lead to incidence of diseases favored under these conditions.
- Temperature is one of the most important factors affecting the occurrence of bacterial diseases caused by pathogens such as *Ralstonia solanacearum*, *Acidovorax avenae* and *Burkholderia glumea*.
- Similarly, the incidence of vector-borne diseases could be altered. Climate can substantially influence the development and distribution of vectors. Changes may result in geographical distribution, changes in population growth rates, increases in the number of generations, extension of the development season, changes in crop-pest synchrony of phenology, changes in interspecific interactions and increased risk of invasion by migrant pests. Because of the short life cycles of insects, mobility, reproductive potential, and physiological sensitivity to temperature, even modest climate change will have rapid impacts on the distribution and abundance of vectors. Thus, increase in temperature may be result in high rates of development of insects, obtaining a greater number of insect generations per cycle (Yanez-Lopez et. al., 2012)
- Huot et. al. (2017) showed that elevated temperatures significantly affect the susceptibility of *Arabidopsis* to *Pseudomonas syringae* pv. *tomato* (Pst) DC3000 and affects the biosynthesis of Salicylic acid which is important in plant defense against pathogens.
- Temperature may alter the growth stage, development rate and pathogenicity of infectious agents. (Charkraborty et.al., 1998)
- Increase in temperatures with sufficient soil moisture may increase evapotranspiration resulting in humid microclimate in crop and may lead to incidence of foliar diseases favored under these conditions
- Increased aggressiveness at higher temperatures of stripe rust isolates (*Puccinia striiformis*), (Mboup et.al., 2012)
- lignification of cell walls increased in forage species at higher temperatures to enhance resistance to fungal pathogens

EFFECT OF ELEVATED CO₂ LEVELS

- An increase in CO₂ levels may encourage the production of plant biomass.

This assertion is derived from the dynamics of the equation that defines the process of photosynthesis by which plants use sunlight to synthesize food from carbon dioxide and water using the green pigment, chlorophyll, and producing Oxygen as an end-product.



An increase in the concentration of carbon dioxide will lead to the production of more glucose and distribution to the rest of the plant. The net effect will be production of more biomass.

- The subsequent dense canopy favors the incidence of rust, powdery mildew, *Alternaria* blight, *Stemphylium* blight and anthracnose diseases
- High disease incidence and severity due to changes in host,
- Reduced stomatal opening and changes in leaf chemistry. In such situations, diseases caused by the pathogens that infect through stomata such as *Phyllosticta minima* may be reduced (McElrone et al., 2005)
- Studies on *Colletotrichum gloeosporioides* at atmospheric CO₂ concentrations of 350 and 700 ppm on susceptible *Stylosanthes scabra* in a controlled environment showed that many lesions per plant were produced under high CO₂, because the enlarged canopy trapped more spores (Pangga et al., 2004)
- Studies on interactions between *Erysiphe cichoracearum* and *Arabidopsis thaliana* under elevated levels of CO₂ showed that more colonies were produced on mature leaves (Lake and Wade (2009)
- 1. Studies on the effect of CO₂ and O₂ on three soybean diseases (downy mildew, *Septoria* and sudden death syndrome) in the field showed reduced downy mildew disease severity but increased brown spot severity and no effect in sudden death syndrome. (Eastburn et al., 2010)
- 2. Studies on the effects of elevated CO₂ and temperature on the incidence of major chili pepper diseases, anthracnose, *Phytophthora* blight showed that anthracnose decreased and *Phytophthora* blight slightly increased (Shin and Yun (2010)

EFFECT OF MOISTURE

- Helps in the activation of bacterial, fungal and nematode pathogens
- Distribution and spread of many pathogens on the same plant and from plant to plant in the same field or to other fields
- Affects fungal spore germination, formation and longevity
- Late blight of potato, downy mildew and other diseases are more severe in areas of high rainfall or high relative humidity
- Many soil pathogens (e.g. *Phytophthora* and *Rhizoctonia*) and some bacteria (*Erwinia*, *Pseudomonas*) and most nematodes usually cause their most severe symptoms on plants when soil is wet but not flooded
- Excess soil moisture favours soil-borne diseases caused by *Phytophthora*, *Pythium*, *Rhizoctonia solani* and *Sclerotium rolfsii*

EFFECT OF WIND

- Important for the dispersal of inoculum
- Wind causes injury to plants and facilitates infection by fungi, bacteria and mechanically transmitted viruses
- Sometimes helps to reduce infection by drying wet surfaces on which fungi and bacteria inoculum have landed

EFFECT OF LIGHT

- The intensity and duration of light may increase or decrease the susceptibility of plants to infection and also affect severity of infection
- Decreased light intensity increases the susceptibility of plants to virus infection

SC2019/AGE01

DETERMINATION OF PHOSPHOROUS LEACHING POTENTIALS ON SELECTED SOILS DERIVED FROM THREE PARENT MATERIALS IN AKWA IBOM STATE, NIGERIA

Umoh, F. O¹; Inyang A. A¹. and Akpan A. E.²

1. Department of Soil Science, Akwa Ibom State University, Mkpatt Enin, Nigeria. 08080692159, umohflorence@gmail.com
2. Department of Soil Science, Akwa Ibom State University, Mkpatt Enin, Nigeria. 08023150560, ednaakpan@yahoo.com

ABSTRACT

This study was conducted to assess Phosphorus Leaching behavior of three (3) selected parent materials in Akwa Ibom State. The soils were formed from river alluvium, beach ridge sand and coastal plain sand. A treatment solution containing 0, 20, 40 and 80mg/l of P prepared from KH₂PO₄ were added to 20g of soil samples in duplicated cups, the upper cup perforated, mixed thoroughly and allowed to dry. The cups were carefully covered and allowed to incubate for 1, 7, 30, 60 and 90 days, respectively. A total of 60 experimental units were generated and the treatment combinations were fitted into a Randomized Complete Block Design (RCBD), with three (3) parent materials representing the block for each of the incubation periods. The soil samples were kept moist with distilled water at weekly interval throughout the duration of incubation. At the set days, the concentrations of P in the leachate were measured. The P concentrations with rates of P added were plotted against the days of incubations. The result shows that the leaching behavior of K in the parent materials varies under similar experimental conditions. Beach ridge sand (52.1mg L⁻¹) and coastal plain sand (21.1mg L⁻¹) with high sand content exhibits highest amount of leaching compared to river alluvium (9.16mg L⁻¹) with high clay and organic matter content. A higher P losses with high rates of P addition was observed and P decreased with time (days) of incubation in the studied soils. River alluvium has long lasting effect of added P with a strong correlation with clay while short lasting effect was observed in coastal plain sand and beach ridge sand with a weak relationship with sand.

Keywords: Phosphorous, leaching effect of P, parent material, incubation time, soil properties.

SC2019/AGE02

THE MODEL AND PROPOSAL OF AKWA IBOM SEED INDUSTRY: A PANACEA FOR FOOD SECURITY CHALLENGES AND POVERTY IN THE STATE

Emmanuel Essien Bassey,

Department of Crop Science, Faculty of Agriculture, University of Uyo, Akwa Ibom State, Nigeria

Phone: +234(0)8024686153

e-mail: emmanuelessien@rocketmail.com; emmanuelbas_129@yahoo.com;
emmanuelbassey@uniuyo.edu.ng

ABSTRACT

Nigeria has been stigmatized as the poverty capital of the world and a major importer of food to feed her citizens. The situation could be traced to the failure of various agricultural programmes to properly address the problem of seed insecurity, which pushes the farmers to use seeds which they save for subsequent planting, leading to poor yields. Akwa Ibom has now come up with a robust agricultural development plan, which may face monumental failure if seed supply is not considered in the policy framework and implementation of the programme. Establishment of seed industry would make quality seeds available at the right time to farmers. It would prevent the use of old, poor yielding seeds by farmers. A lot of income could be generated by the State, while providing employment for the people.

Keywords: Seed industry model, quality seeds, high yield, and poverty eradication.

TECHNICAL SESSION: SOCIETY FOR AGRICULTURE

VENUE: FACULTY OF AGRICULTURE CONFERENCE HALL

DATE: TUESDAY 19TH NOVEMBER, 2019

TIME: 9AM - 3PM

CHAIRMAN: PROF. GODFREY UDOH

RAPPORTEUR: DR. I. UDOH

CENTRE COORDINATOR: DR. E. E. NYONG

SYSTEM OPERATOR: MR. I. B. UDOSEN

Abstract No.	Title of Abstracts	Author(s)
SC2019/AGE14	Effects of Carbon/Nitrogen Ratio and Particle Size of Rice Husk and Sawdust on Composting of Poultry Manure and the Performance of <i>Amaranthus cruentus</i> on Soils Derived From Coastal Plain Sands in Akwa Ibom State, Nigeria	Ekong, U. J., N. M. John and M. O. Eyang ²
SC2019/AGE15	Strategies to Reduce Social Vulnerability of Rural Dwellers to Climate Variation in Akwa Ibom State, Nigeria	Solomon, V. A and Akpe, M. F
SC2019/AGE16	Assessment of Some Chemical Composition and Physical Properties in Palm Oil Mill Effluent Dumpsites and its Implication on Soil Fertility	Simeon Samuel, Ikpe Alanimio and Effiong Gregory
SC2019/AGE17	Performance and Yield of Fluted Pumpkin (<i>Telfairia occidentalis</i> (F.) Hook) on an Ultisol Amended With Soybean Meal	Elwere, O. J., Akpan, E. A., and O. R. Akata.
SC2019/AGE18	Resource Use Efficiency in Oil Palm Production in Akwa Ibom State, Nigeria	Nyong, E. E and Efreter A.
SC2019/AGE19	Effects of Climate Change on <i>Telfairia Occidentalis</i> (Fluted Gourd) Production in Ahoada East Local Government Area, Rivers State	Tasie, C.M. And Kallo, A.E.
SC2019/AGE20	Urbanization and Urban Development in Nigeria: Akwa Ibom State Perspective	Akpabio M. Ufot-Akpabio and Beulah I. Ofem
SC2019/AGE21	Performance and Haematology of Weaner Pig Fed Diets Containing Different Mollusc Shells	Ukpanah, U. A., K. U. Amaefule, I. M. Sam,
SC2019/AGE22	Determination of Soil Quality in a Tropical Ecosystem of Odukpani Local Government Area in Cross River State.	John, U. N.; P. B. Okon and N. M. John 22
SC2019/AGE23	Influence of Sex on Relationship Between Morphometric Trait Measurement and Carcass Traits in Broiler Chicken Raised in Humid Tropic	Sam, I. M. 23
SC2019/AGE24	Seeking Empirical Evidence of Determinants of Value Addition Stages by Major Oil Palm Value Chain Actors in South-South Zone, Nigeria	Udoka, S.J., Akpan S. B., Ini-mfon V.P., and Ugwu D.S.
SC2019/AGE25	Climate Change, Plant Diseases and the Challenge of Food Security	Okon A Ansa
SC2019/AGE26	Influence of Sex on Relationship between Morphometric Trait Measurement and Carcass Traits in Broiler Chicken Raised in Humid Tropic	Sam, I. M. 26
SC2019/AGE27	Influence of Feed type and Age of Broodstocks On Eggs Quality of <i>Heterobranchus Longifilis</i>	A. J. Otoh and Niewadim, A. A.

CONCLUSION

In summary, climate influences all stages of development of host and pathogen. Temperature, water and light are the major factors affecting growth and development of hosts and pathogens. Climate influences incidence and severity of various plant diseases. Climate plays a major role in dispersal of inoculum and consequently in spread of diseases. Climatic factors of temperature, CO₂ concentration, water, humidity and wind play major roles in the survival, rate of multiplication, sporulation in fungi and bacteria, rate of spore germination, ease of penetration into the host, distance of dispersal of inoculum and vigour of pathogen and host. Environmental changes would add to the unpredictability of these events and could create the conditions for unpredictably high incidence and severity of various plant diseases.

REFERENCES

- Adejumo, T. O. and Adejoro, D. O. 2014. Incidence of aflatoxins, fumonisins, trichothecenes and ochratoxins in Nigerian foods and possible intervention strategies. **Online: Food science and Quality Management**. Vol. 31.127 – 146.
- Beddington J, Asaduzzaman M, Clark M, Fernández A, Guillou M, Jahn M, Erda L, Mamo T, Van Bo N, Nobre CA, Scholes R, Sharma R, Wakhungu J. 2012. Achieving food security in the face of climate change: Final report from the Commission on Sustainable Agriculture and Climate Change. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark.
- Chakraborty, S, Murray, G M., Magarey, P. A., Yonow, T., O'Brien, R G., Croft, B. Barbetti, M. J., Sivasithamparan, K., Old, K. M., Dudzinski, M. J., Sutherst, R. W., Penrose, L. J., Archer, C., Emmett, R. W. (1998) Potential impact of climate change on plant diseases of economic significance to Australia Australasian Plant Pathology, 1998, Volume 27, Number 1, Page 15
- Eastburn, D.M., Degennaro, M.M., DeLucia, E.H., Dermody, O. and McElrone, A.J. 2010. Elevated atmospheric carbon dioxide and ozone alter soybean diseases at SoyFACE. *Global Change Biology* **16**: 320-330.
- Food and Agricultural Organization. 1996. Report of the World Food Summit.
- Huot, B., Castroverde, C. D. M., Velásquez, A. C., Hubbard, E., Pulman, J. A., Yao, J., Childs, K. L., Tsuda, K., Montgomery, B L., and He, S., Y. (2017). Dual impact of elevated temperature on plant defence and bacterial virulence in *Arabidopsis*. *Nature Communications* **8**: 1808
- IPCC, 2005. Safeguarding the ozone layer and the global climate system. Bert Metz, Lambert Kuijpers, Susan Solomon, Stephen O. Andersen, Ogunlade Davidson, José Pons, David de Jager, Tahl Kestin, Martin Manning, and Leo Meyer (Eds) Cambridge University Press, UK. pp 478.
- IPCC, 2007: Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.
- Lake, J. and Wade, R. 2009. Plant-pathogen interactions and elevated CO₂: morphological changes in favour of pathogens. *J. Exp. Bot.* **60**:3123–3131

Mboup, M, Balin, B., Leconte, M., Vallaville-pope, C. D., Kaltz, O., Enjalbert, J. (2012). Genetic structure and local adaptation of European wheat yellow rust populations: the role of temperature-specific adaptation. *Evolutionary Applications*. 5: 341-352

Mcelrone, A J., Reid, C. D., Hoyer, K A., Hart, E, Jackson, R. B, (2005) Elevated CO₂ reduces disease incidence and severity of a red maple fungal pathogen via changes in host physiology and leaf chemistry *Global Change Biology* Vol 11 (10): 1828-1836

Pangga, I.B., Chakraborty, S. and Yates, D. 2004. Canopy size and induced resistance in *Stylosanthes scabra* determine anthracnose severity at high CO₂. *Phytopathology* 94: 221-227.

Shin, J and Yun, S., (2010). Elevated CO₂ and temperature effects on the incidence of four major chilli pepper diseases. *The plant pathology journal*. 26: 2

University of Oslo (2009). Ozone and UV-Radiation. FYS 3610 – Space Physics

Yañez-López, R., Torres-Pacheco, I., Guevara-González, R. G., Hernández-Zul, M. I., Quijano-Carranza, J. A., and Rico-García, E., (2012). The effect of climate change on plant diseases. *African Journal of Biotechnology* Vol. 11(10), pp. 2417-2428.

TECHNICAL SESSION: SOCIETY FOR AGRICULTURE

VENUE: FACULTY OF AGRICULTURE OF RESOURCE CENTRE

DATE: TUESDAY 19TH NOVEMBER, 2019

TIME: 9AM - 3PM

CHAIRMAN: PROF. N. M. JOHN

RAPPORTEUR: DR. S. B. AKPAN

CENTRE COORDINATOR: ENGR. P. EKPENYONG

SYSTEM OPERATOR: MR. A. NTEKIM

Abstract No.	Title of Abstracts	Author(s)
SC2019/AGE01	Determination of Phosphorous Leaching Potentials On Selected Soils Derived From Three Parent Materials In Akwa Ibom State, Nigeria	Umoh, F. O ¹ ; Inyang A. A ¹ . and Akpan A. E. ²
SC2019/AGE02	The Model and Proposal of Akwa Ibom Seed Industry: A Panacea For Food Security Challenges and Poverty in the State	Emmanuel Essien Bassey,
SC2019/AGE03	Ogoni Women Farmers Participation in Agricultural Production in the Remediated Oil Spill Land	Etukudoh, Ndarake Emmanuel, Nae Fortune Okah, Utibe Ukanu Usendu
SC2019/AGE04	Trend and Determinants of Deforestation in Akwa Ibom State	Nelson, I. U., Jacob, D. E., Ityavyar, A. J. and Eniang, E. A.
SC2019/AGE05	Evaluation of Character Association and Path Analysis on Grain Yield in Maize (ZEA Mays L.) in Uyo, Southeastern Nigeria.	Udo, Hannah I., Bassey, E. E., and Harry, G. I.
SC2019/AGE06	Economics of off- Season Cucumber Production in Uzo-uwani Local Government Area of Enugu State	Okorie, O. J., Umaru, I. I., Ibe, J. C., Awoyelu, F. and Uchua, T. D.
SC2019/AGE07	Effects Of Tillage Methods on Soil Properties and Performance of African Yam Beans (Sphenostylis Stenocarpa) in Obio-akpa, Akwa Ibom State, Nigeria.	Akpan, E. A. and Ufot, U. O.
SC2019/AGE08	Climate Change: Causes And Implications For Developing Economies	Adeyemi T.O.A, Fakolade A.N, Folgunsho W.O and Igboanugo C.S
SC2019/AGE09	Effects Of Organic Manures On Soil Characteristics And Performance Of Cocoyam (xanthosomas Spp) On Acid Sands Of Southeastern Nigeria	Akpan, E. A and Ufot, U. O.
SC2019/AGE10	Climate Change Impact on Tropical Forest Ecosystem and Biodiversity: The Case Of Sub-saharan Africa	Adeyemi To.a, Agboje I, Osazuwa D.k and Oripelaye O.S
SC2019/AGE11	Effects Of Urban Crime on the Economic Development of Oron Urban, Akwa Ibom State, Nigeria	Beulah I. Ofem, Bassey E. Antai and Ekong Daniel
SC2019/AGE12	Yam Based Farmers' Response to Challenges of Climate Smart Agriculture in Kogi State, Nigeria	Simpa Odeku James
SC2019/AGE13	Effects of Gramoxone Herbicide on Soil Microbial Population at Obio Akpa, Southeast, Nigeria	Udumoh, I.D.J., Uduak, I.G. and Bassey, D.E