



**PRESIDENTIAL ADDRESS DELIVERED AT THE 46<sup>TH</sup> ANNUAL CONFERENCE AND  
50<sup>TH</sup> (GOLDEN JUBILEE) ANNIVERSARY OF THE ENTOMOLOGICAL SOCIETY OF NIGERIA  
HELD AT THE UNIVERSITY OF LAGOS 6-9 OCTOBER 2015**



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**Protocol**

Distinguished Ladies and Gentlemen Fellow Entomologists

On this occasion of the celebration of our 50th anniversary and the 46<sup>th</sup> annual conference, it is my humble pleasure on behalf of Council and the -entire membership of the Entomological Society of Nigeria (ESN) to welcome you all to Lagos. Since 1965 when our Society was inaugurated, we have missed only four (4) conferences.

We are gathered here today because of our mutual or convergent interest in the study of insects and its application to knowledge in many areas of endeavour. Insects are minute but active arthropods which are found everywhere with impacts on Agriculture, health, environment and economy. It is this same collective interest that brought together in 1965, our founding members in the University of Ibadan. It is a glorious mystery that these wise men had their minds and hearts turned to this small creature flying about in our environment.

It is curious to know that while their contemporaries were advancing fast into medicine, law, politics and business to make money, Ajibola Taylor, Afolabi Toyé, Anthony Youdeowei, Apeji, S.N, Okiwelu, R.A. Balogun, Lasebikan, Akingbohunge, Eguagie, J. Odebiyi, Matanmi, Obadofin, Misari, Tenabe, Osisanya, Daramola, Adesiyun, Ogunwolu, Deeming and Libby (non-Nigerian) and the rest took their butterfly nets to catch insects for study and research. Conscious of the significance of these small but ubiquitous insects to man and his environment, these entomologists came together 50 years ago led by Prof Aiibola Taylor (1 st President) to form what is now known as Entomological Society of Nigeria. Majority of members of this Society present here today were either not born at that time or were in their-egg/immature stage in their hemi\holometabolic setting.

Let us today profoundly and warmly express our gratitude to all of them that they approached insects in the right way to blaze the trail for many of us who were their students.

As I mentioned in my address in Yenagoa 2013 (44th annual conference), these founding fathers had the ability and wisdom to understand with their minds, -the essentials about -insects which they studied abroad and in Nigeria in collaboration with World-renowned entomologists like Wigglesworth, Gilbert Wilson, Van Emden and the rest.

They imparted this knowledge to us. Through divine providence, some of them are present here while others are absent or late and I think this is the time and place ladies and gentlemen, Fellow entomologists to thank all those prominent entomologists from whom we received our basic knowledge and to honour them with a resounding applause.





Insects damage food, destroy about V2 of all harvested food in storage and often cause loss of entire crops. The old tropical insect vector borne human diseases like malaria, dengue and other arboviruses and leishmaniases are making a dramatic come back on the continent. This confirms that the war between man and insects is endless; it only abates and resurges. It is incredible to know that African livestock for example succumb easily in their millions to insect and tick borne diseases which results in losses of milk, meat and traction power with huge yearly monetary losses. However, some insects and arthropods play beneficial roles using their biodiversity and ecosystem services such as degradation of organic matter, control of pests and diseases as predators and parasitoids and the pollination of crops. They provide us with food, feed, textiles, waxes and numerous other products. In other aspects, insects excel in nature. For example, the black soldier fly, *Hermetia Illucens* converts organic waste to biodiesel. In various aspects of technology and human endeavour, insects are used as models e.g. in medicine, arts, culture, folklore, agricultural & genetic studies, biological studies and even recently the design and operation of a fuelless aircraft which mimics the dragonfly (Order Odonata). It was reported in May 2015 that it takes a Boeing 747 about 10hrs and 136,000 litres of fuel to fly from eastern China to Hawaii. It was also stated that from 04/05/15 Andre Borschberg would attempt same flight in a sun-powered aircraft that resembles a dragonfly. This would be done over 5 days without a drop of fuel. The dragonfly we all know is a strong flyer with its wings permanently stretched without folding.



With global climate change, there is a threat of transnational pest organisms transfer from one end of the globe to another. Without doubt, pests and disease vectors are invariably linked with the vicious cycle of climate change and variability, poverty, food insecurity and insufficiency leading to poor human and livestock health.

Systems that humans depend on are not completely sustainable without the contributions of insects and arthropods.

**NIGERIAN JOURNAL OF ENTOMOLOGY (NJE), MEMBERS' DIRECTORY & TETFUND** In marking our 50 years of existence, it is our desire now to have a high impact journal with open access. The . implication of this, fellow entomologists, is to have a collective responsibility to make our Society and its journal a cynosure. We must resolve to make a remarkable and deliberate progress in this direction and leave nothing to chance. The complex organization of scientific research today ensures that chance makes very little contribution to progress. The N5m TETFUND grant to the Society about four (4) years ago was for specific equipment and the publication of our journal. The equipment listed by TETFUND and the temporary Secretariat in Ahmadu Bello University Zaria, were inspected on 15/12/14 by TETFUND crew and certified adequate with the publication of volumes 28 and 29 of our journal.

However, the publication of these volumes was unfortunately punctuated with editorial challenges. Some reviewers were not thorough and authors did not return their corrected papers on time. Some papers were badly written and rejected. If such papers are published in our journal, they will not stimulate the interest of readers with inquisitive minds. When your paper is rejected by the editor, it is not to discourage you but to make you sit straight and reorganize your thoughts.





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It is heart warming that of the N5m grant, N4m has been retired leaving the last tranche of N 1 m which TETFUND has promised to pay. I am also delighted to say that today a special publication of NJE volume 31 will be launched along with the Directory of Nigerian Entomologists. The Council is grateful to all members of the editorial board whose tenure for four years from 2013 will expire in 2017. They are Profs. B.D. George (Editor-in-chief), E.O. Ogunwolu, S.N. Okiwelu Olukayode Adedire and A.M. Oparaeke (tenure ends soon)



It is my view, fellow entomologists, ladies and gentlemen and I so submit with utmost certainty that it is a privilege to be a member of ESN and to be its servant in any capacity. So let us work hard to sustain what our founding fathers have laid down for us.

The Review- and update of the Directory of Entomologists started in 2013. The idea was to have a comprehensive list of authentic members of the Society (old and new) with their profiles. What we have today is such a document which I encourage all members to have. It contains a list of founding fathers, past till present national officers, trustees, Fellows, life members, current national executive officers, branches of the Society and all authentic and duly registered members.

#### **ESN SECRETARIAT/INSECT MUSEUM**

At the 45<sup>th</sup> annual conference in University of Abuja 2014, our Society requested for a space of 100m x 100m (1 ha) for building its National Secretariat/Insect Museum within the premises of the University. The Architectural design and estimates were considered by our Council and a formal approval has been given to us by the University administration. The site has also been shown to us for the building. The building is expected to commence soon after your kind donation.

#### **HONOURS AND AWARDS**

##### **FESN**

It is the policy of the Society to give Fellowship awards to deserving members every two years. In 2014, Professors W.A. Makanjuola and M.O. Ashamo were made Fellows of the Society in the 45<sup>th</sup> conference in Abuja. The next award will be in 2016 when my tenure ends as President.

1. Professor Anthony Youdeowei was selected as Winner of the 2015 International Plant Protection Award of Distinction, IPPAD. This award was conferred at the 18<sup>th</sup> International Plant Protection Congress in Berlin Germany in August 2015. ESN sent a congratulatory message to him. In his reply he wrote "I am most delighted to receive the congratulatory letter from our beloved Entomological Society of Nigeria and wish to confirm that the ESN should also take credit for this award. I wish to attend the October Conference in Lagos so send me details, warm regards from UK" Recall that Professor Youdeowei was one of those who laid the strong base for our Society.
2. Prof N.E.S. Lale, ex editor-in-chief of NJE, branch chairman PH/Yenagoa, Council member and a Fellow of the Society was appointed 8<sup>th</sup> Vice-Chancellor of University of Port Harcourt w.e.f. July 2015.





### BEREAVEMENT

1. A foremost Entomologist, Sir Albert Ukuaghegbole Oboite died Monday 10 Nov. 2014 at 87 years. He was a former chief technologist and curator Emeritus at University of Ibadan. He was buried 4 & 5 December 2014 at Ujemen, Ekpoma, Edo State.
2. Professor Mike Chidozie Dike ex National President and trustee of the Society, died in a motor accident from Owerri to Zaria 7 January 2015. He was buried 4-7 Feb; 2015 in hometown near Owerri. ESN attended the funeral led by me.
3. The mother of Emeritus professor R.I. Egwatu of Awka branch died at 94 on 17 Feb 2015 buried in Obosi 15 May 2015.
4. The mother of Professor R.S. Adamu (Zaria, Kaduna branch Chairman) died 24 Feb 2015, buried 25 Feb 2015.
5. Dr Emmanuel O. Osisanya, FESN of the University of Ibadan died at 80 years on Sat 30 May 2015. Buried 3rd July 2015. He was a frontline entomologist/taxonomist and founding father of the Society.
6. Mr. Samuel Cheren of Makurdi/Yandev/Lafia branch died. Mrs Stephanie Adelusi lost her mother-in Dee. 2014.

We rejoice with Dr Haliru Bandiya of Sokoto branch who survived an accident on 10 May 2015.

### CONCLUSION

I thank members of the Local Organising Committee and the Jubilee Committee headed by Professors W. Makanjuola and Omudu respectively for their wonderful efforts. Conference attendance certificates for this conference are ready and will be given to members who have registered and attended this conference. Thanks to Professor Timothy Epidi who has continued to sponsor the printing of these certificates since 2013 in Yenagoa conference.

Ladies and gentlemen, fellow entomologists, elders and founding fathers of Entomological Society of Nigeria, it is my hope and I believe that the Society is poised for greater achievements in the years ahead. We have seen the silver jubilee, we are celebrating the golden and we shall be there in the Diamond jubilee celebration!

Thank you for attending this memorable jubilee conference.

**Professor Dan A. Enobakhare, FESN, KSM**  
*National President 2012 - Date.*





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## **Insect Science: A Veritable Tool for Job Creation and Sustainable Development**

environmentally destructive impacts. Solutions need to be researched and explored.

One of the many ways to address food and feed security is through insect farming. Insects are everywhere and they reproduce quickly and they have high growth and feed conversion rates and a low environmental footprint over their entire life cycle. They are nutritious, with high protein, fat and mineral contents. They can be reared on waste streams like food waste. Moreover, they can be eaten whole or ground into a powder or paste, and incorporated into other foods. The use of insects on a large scale as a feed ingredient is technically feasible and established companies in various parts of the world are already leading the way in this regard. Insects as feedstock for aquaculture and poultry feed are likely to become more prevalent within the next decade.

Recent experience has shown that insects are from gathering to farming. The domestication of insects is a

very good idea that is crucial because it will enable local communities to produce insects so that they will be able to increase supply of insects and, at the same time, increasing production would mean an increase in their income, thus domestication of insects is a win-win approach. The insects will be sustainably produced and at the same time the livelihoods of rural communities will continue to improve.

More than 1900 edible insect species are consumed around the world. However, this number continues to grow as more research is conducted. The majority of these known species are harvested in the wild; however, few data are available on the quantities of insects consumed worldwide. From the data that are available, the most commonly consumed insects are beetles (Coleoptera) (31 percent), caterpillars (Lepidoptera) (18 percent) and bees, wasps and ants (Hymenoptera) (14 percent). These are followed by grasshoppers, locusts and crickets (Orthoptera) (13 percent), cicadas, leaf and

planthoppers, scale insects and true bugs (Hemiptera) (10 percent), termites (Isoptera) (3 percent), dragonflies (Odonata) (3 percent), flies (Diptera) (2 percent) and other orders (5 percent).

Historically, the majority of insect collection occurs through wild gathering, mainly in forests. However, modern insect science merged with valuable traditional knowledge and food culture can contribute to innovation and the scaling up of mass-rearing technologies. Farming insects as minilivestock offers great opportunities to increase supply without compromising wild insect populations.

### **Insect Farming**

Insect farming is the practice of raising insects for agricultural purposes. It can either be used to fight invasive species, to create industrial products such as petroleum or to grow inexpensive and environmentally sustainable food for humans or animals. Insects offer a highly economical, sustainable solution to existing and looming issues with the production and distribution of high quality protein to help meet growing demands as the world population grows and





...Cont. from page 1



## Insect Science: A Veritable Tool for Job Creation and Sustainable Development

increases its protein consumption. Insects have a high nutritional value, probiotic potential, and affordable price. Insects such as crickets and worms have high concentrations of amino acids, vitamin B12, riboflavin, vitamin A. They are a good source of protein. Insect farming is much cheaper than cattle farming and requires much less energy. Cattle feedlots require a huge amount of energy and money to raise and feed cattle, remove waste and to keep them healthy. Insects are grown in their naturally based places, in a normal and healthy ecosystem. Organic waste from plant harvest and processing feeds large populations of worms. Worms turn the waste stream into high quality fertilizer that can nourish the next generation of plants growing. Insects and other crops can support each other and provide a surplus of each other to farmers.

Breeding insects share similarities and differences with the breeding of larger animals. Due to the high amount of insect species, breeding techniques are mostly

insect-specific. Difficulties are also specific. This means that the solution for a breeding problem with meal worms for example will most probably be



**Insect Farming in Thailand**

ineffective for a similar problem with a cricket breeding. Furthermore, the technical requisites of the breeding have to be made compatible with the awaited economical profit. Insect breeding requires therefore two kinds of skills:

1. mastering rearing techniques
2. mastering analytical methods for choosing the rearing techniques which are

best adapted to the economical conditions.

### Benefits of Farming Insect



#### Reduced feed

Typical cattle require roughly 8 pounds of feed to produce a single pound of beef. Insects on the other hand require only 2

pounds of feed to produce 1 pound of meat, making them four times as efficient. Much of this efficiency comes about because bugs get their heat from the environment instead of having to create their own body heat like typical mammals.

#### Nutrient efficiency

Insects are nutrient efficient compared to other meat sources. Locusts for example contain between 8 and 20





## Insect Science: A Veritable Tool for Job Creation and Sustainable Development



milligrams of iron for every 100 grams of locusts. Beef on the other hand contains roughly 6 milligrams of iron in the same amount of meat. Crickets as well are very efficient when you compare nutrients. For every 100 grams of substance crickets contain 12.9 grams of protein, 121 calories, and 5.5 grams of fat. Beef contains more protein containing 23.5 grams in 100 grams of substance, but also has roughly 3 times the calories, and four times the amount of fat as crickets do in 100 grams. So, per 100 grams of substance, crickets contain only half the nutrients of beef, except for the iron which may be of benefit to menstrual women. High levels of iron are implicated in bowel cancer and heart disease.

### Greenhouse emissions

The raising of typical livestock causes almost 20% of all the greenhouse gases created. Alternative sources of protein in the average diet such as insects lowers the amount of livestock needed and can help lower greenhouse gases created in the process.

### Land usage

Many animal farms contain pastures to allow livestock to graze. According to greenplanet.org raising animals for food uses up to 30% of the Earth's land mass; on top of this almost 80% of ammonia that the U.S. produces comes from animal excrement. Using insects as part of the diet could replace some of the required space currently used for livestock. And given the size of insects and how fast they reproduce much less land is required to produce meat.

### Farming of popular insects

#### Crickets

Among the different types of crickets, the house cricket is

the most common type to be used for human consumption.

House crickets only live up to about eight weeks. Until they are twenty days old they are fed high protein animal feed, most commonly chicken feed that contains either 14% or 20% of protein. Once they finally reach twenty days old they can be fed a mixture of the two. A few days before harvesting the crickets at forty-five days old the crickets are fed various vegetables such as pumpkins, cassava leaves, morning glory leaves, and more. This is done to improve the taste of the insects and reduce the use of the expensive, high protein animal feed.



A Typical Cricket Farm







# Insect Science:

A Veritable Tool for Job Creation and Sustainable Development

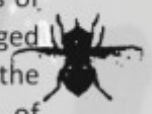


## Meal-worms

In order for the meal-worms to live long enough to harvest they must be kept at a temperature of 23.9 to 26.7 °C. When raising meal-worms farmers must avoid using wood containers to hold them due to the fact that the meal-worms will simply eat through the wood or climb up the walls to escape. It is also important to make sure that they have enough ventilation. The meal-worms must be kept on a proper bedding of wheat middling and things such as maize, cornmeal, and other

nutritional powders can be added into the bedding to ensure the meal-worms have enough nutritional value for human consumption. For moisture within the container insect farmers usually use fruits and vegetables on top of the bedding provided for the meal-worms. The fruit or vegetable has to be changed every few days to prevent any mold growth within the container to contaminate these edible insects.

benefit of insects in terms of nutritive value has changed the psyche of most part of the world on consumption of insects. This has led to vigorous campaigns by experts, medical doctors and the United Nation and this has increased the number of consumers and has in turn create the need for more insect farms to meet the growing demand. Insects are presently marketed in open markets, shopping malls, and form part of menus in restaurants all over the world.



## Marketing Insects

The recent awareness of



Sales of Insects in Open Market



Sales of Insects in Shopping Mall



Sales of Frozen Insect in Deep Freezers



Edible insects in popular menus in USA





## Insect Science: A Veritable Tool for Job Creation and Sustainable Development



### Use of Insects for sustainable Livelihood

The use of insects for sustainable livelihood can proffer the under listed benefits:

Insect gathering and rearing can offer important sustainable livelihood in terms of diversification strategies as insects can be directly and easily collected in the wild with minimal technical or capital expenditure required for basic harvesting and rearing equipment.

Insects can be gathered in the wild, cultivated, processed and sold by the poorest members of society, such as women and landless people in urban and rural areas. These activities can directly improve diets and provide cash income through the selling of excess production as street food.

Insect harvesting and farming can provide entrepreneurship opportunities in developed, transitional and developing economies.

Insects can be processed for food and feed relatively easily. Some species can be consumed whole while some can be processed into pastes

or ground into meal and their proteins can be extracted for example in Netherlands mealworms are sorted prior to freeze drying and packaging while Grasshoppers known as chapulines in Oaxaca, Mexico, are a local delicacy. Also in Kenya crickets are reared in plastic bucket using simple tools such as a saucer and cotton for drinkers and folded used carton papers to provide climbing and hiding places. In Nigeria cricket, grasshopper, larvae of some insect species as well as termites forms notable delicacies.

As feed alternative, according to the International Feed Industry Federation, global compound animal feed production was 720 million tonnes in 2010. Insects can supplement traditional feed sources such as soy, maize, grains and fishmeal. Insects with the largest immediate potential for large-scale feed production are larvae of the black soldier fly, the common housefly and the yellow mealworm but other insect species are also being investigated for this purpose. Producers in China, South Africa, Spain and the United

States are already rearing large quantities of flies for aquaculture and poultry feed by bioconverting organic waste.

Science fiction or reality the base of entrepreneurial activities and formalized activities in insect farming is still small, initiatives to realize the potential of insects as feed and food are emerging. At present, insect farming takes place mainly at the small-scale, family-farm level and caters to niche markets. Insects have been farmed for a long time by the pet food and ornamental insect sectors as well as the fish bait industry.

More than just food insects provide other important and useful functions beyond food and feed as they are important providers of ecosystem services. For example, insects play an important role in pollination, biological control and the decomposition of organic litter.

Insects are being tested to reduce livestock manure, such as that generated by pigs and to mitigate foul odours. Larval flies can be used to transform manure into





3. Prof Timothy Epidi, current branch chairman PH/Yenagoa was appointed Deputy Vice Chancellor (Adm) of Niger Delta University, Yenagoa.
4. Professor Timothy I. Ofuya was appointed Vice Chancellor Wellspring University, Benin City.
5. Professor (Mrs) O.O. Odeyemi was appointed Vice Chancellor Chrisland University Owode, Ogun State
6. Prof. Tola Badejo had his appointment renewed for 5 years as Vice-Chancellor WUSTO, Ondo State.



So, with Professor Hayward B. Mafuyai, Vice-Chancellor University of Jos and Prof. J. Odebiyi whose tenure has ended as Vice-Chancellor, Achievers University, Owo, our Society has produced seven (7) Vice Chancellors in my tenure as National President of the Society.

7. Dr. N.J. Okonokwo of Awka branch was promoted to the rank of Reader. M.M. Manyi defended his PhD in Benue State University Makurdi.

Stanley Dimkpa and Azawei Alamene of PH/Yenagoa branch was awarded PhD. Professor Asala was re-elected as Provost of College of Health Sciences University of Abuja. In the same University, Akeen Oyerinde the PRO of the Society was made a member of the Research grant Committee and Ceremonials. Mrs Asala defended her PhD and was appointed Deputy Dean, Faculty of Agriculture University of Abuja. Emmanuel Isegbe Onah got his Msc in the Department of Biological Sciences, Benue State University Makurdi. Dr. H. Nahunnaro was appointed HOD and promoted to Associate Professor. He is in Yola/Jalingo/Mubi branch. Dr. e.O. Echereobia and K.O. Ogbedeh were promoted to the rank of Senior lecturer at Owerri branch. O.A. Banjo defended his PhD at O.O.U Abeokuta, O.A. Oke was promoted to Reader in FUNNAB. O.A. Lawai was promoted to Professor at O.O.U

#### **APEJI/TOLA BADEJO/OKELANA FOUNDATION IN 2015**

Three (3) successful applicants and beneficiaries of N 10,000.00 for 2015 conference are;

- a. Maduamaka C. Abajue, Phd Student Nnamdi Azikiwe University, Awka
- b. Musa Nurudeen, Msc Student Department of Crop protection Ahmadu Bello University Zaria
- c. Emmanuel Isegbe Onah, Msc student Department of Biological Sciences Benue State University, Makurdi

I thank Professor A. Adesiyun for the critical assessment of all candidates who applied for this award.

#### **INAUGURAL LECTURES**

1. Professor E.K. Ewete (Ibadan branch) presented his inaugural lecture in May 2015 in University of Ibadan.
2. Prof Idowu of FUNNAB gave inaugural lecture 15 July 2015 titled "The animal in the lens of a zoologist". Professor A. T. Hassan of the Department of Zoology, University of Ibadan retired voluntarily.





## Insect Science: A Veritable Tool for Job Creation and Sustainable Development



been moved from one place to another.

Insects have formed part of traditional medicine for thousands of years. For example, fly maggots have been used to clean dead tissue in wounds and bee products such as propolis, royal jelly and honey have been used for their healing

Silk, a product of silkworms (*Bombyx mori*), has been used for centuries as a soft yet strong and highly durable fabric and also the Lac Scale insects (*Laccifer lacca*, *Kerria lacca*) are a good source of a commercial varnish.

economic products such as honey, beeswax, royal jelly, venom, propolis, pollen and brood were sourced by man from honeybee colonies. Britain alone imports 1 million pounds of beeswax, which can be used as a base for ointments, polishes, and candle making. Forty percent of all beeswax is used in cosmetic manufacture for



**Honeybee Comb**

properties.

The natural colour of insects has been exploited by different cultures for centuries. For example, the Aztecs used the red colour produced by the cochineal (scale insect) and this insect is still used today as a natural food colouring in cosmetics and as a dye.

One of the greatest benefits man receives through insects is the pollination of plants. Approximately 50 seed and fruit crops depend on honeybees for pollination. Clover, onions, apples and others would not yield without insect pollinators, butterflies, ants, flies and bees. Also, other valuable

lotions, creams, and lipsticks

Many species of scale insects provide dyes that are used in many products, including cosmetics and for coloring cakes, medicines and beverages. Cochineal is a bright red pigment that is gained from the bodies of a scale insect, *Coccus cacti*.





## Insect Science: A Veritable Tool for Job Creation and Sustainable Development



which lives on cactus plants. Certain synthetic colors were competitors during the first decade of the twentieth century, but then were found to be carcinogenic. Thus the natural dyes from insects again flourished. Tannin is a dye that is gained from insect galls and is used in the tanning of hides and in the production of permanent durable inks. There are other galls that produce dyes.

Fruit flies have long been used in genetic studies, and are practical for such studies due to their short lifespan (about 10 days).

Carpet beetles are small insects that will feed on almost anything organic, including cereals, carpets, and dried insects in collections. Museum technicians take advantage of this fact, and utilize established colonies of dermestids to clean skeletons of mammals.

### Conclusion

Although rearing insects is technically feasible, a large constraint is that production can be more expensive than the production of traditional food and feed sources. However, current researches

suggests that insects can often be a more sustainable and cheaper alternative when external costs from harvest, production and transportation such as fresh water, greenhouse gas emissions and fossil fuel consumption are factored into the total costs of conventionally produced food. At present, the scale of current production cannot compete with conventional feed and food sources but further mechanization is therefore a key issue in the growth of the industry. In addition, appropriate regulatory frameworks governing the production and trade of insects as feed and food need to be developed. Therefore, further research is germane to develop and automate cost-effective, energy-efficient and microbially safe rearing, harvest and post harvest processing technologies as well as sanitation procedures to ensure food and feed safety and produce safe insect products at a reasonable price on an industrial scale, especially in comparison to meat products.

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By

**Oyerinde Akeem Abolade PhD**

**ESN National Assistant Secretary/PRO**

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# Photo Splash





# Entomology as a Career

By Aderolu Ismail Adeniran PhD

*Kwara State University, Malete, Kwara State, Nigeria*



**A**s an entomologist where do we work? Most often, after second and even third degree you still find entomologists searching for jobs when they can easily create one and become employer of labour. This is actually what prompted me to come up with this write up so as to re-orientate our new generation and to re-awake the entrepreneurship calling in them.

As an entomologist, we are saddled with the responsibility of studying insects. We are meant to use science to identify, classify and study insects and their relationships to plants and animal life. In case they constitute nuisance to man, we are meant to control them with insecticide. This is where extra care has to be taken, because ecological impacts of the insecticide have to be considered.

Indiscriminate use and broad-spectrum insecticide could result to depletion of natural enemies, environmental pollution, resurgence of pest and diseases and emergence of acute diseases. At this junction, our research plays a huge role in understanding ecosystems and to come up with a control measure that will protect the integrity of the environment. To achieve this, the operational mechanisms and factors responsible for change in the

ecosystem have to be thoroughly understood.

As experts in insect science who know how critical insects are to ecosystems. Our role is not fire brigade approach. When we hear information of insect outbreak, the first thing we need to do is to carry out investigation and study the affected area to determine the proper action and the extent of infestation. Then, to collect samples of the insects and take them to the lab where we will identify the specimens and determine if they are native to the area or are invasive species, because infestations are treated differently based on their source. As soon as the invading species has been identified, then other factors such as:

1. What kind of threat the insect poses and to whom?
2. Are these insects carrying diseases or destroying habitat?
3. Are they sources of food for other wildlife?
4. What environmental conditions are driving this infestation? and
5. What effect will control measures have on the area?

These are the questions we need to investigate and evaluate before making any decisions as to the best way to

tackle the infestation. Then you choose appropriate insecticide and spray the affected areas to stop the spread of this insect. Furthermore, the role of entomologist in industries such as agriculture and forestry and in managing insect populations to protect public health cannot be underestimated.

## Work environment for Entomologists

As entomologist we can work in a variety of locations, including, but not limited to:

### 1. In the office:

- Doing paperwork and analyzing data for reporting,
- Communicating on the phone and in meetings with clients, government departments, colleagues and experts in the field,
- Developing and implementing management practices and policies to accomplish agency objectives,
- Researching new studies and advancements in entomology and conducting literature reviews from scientific publications
- Developing educational material, including workshops, for the public and other stakeholders

### 2. In the laboratory:

- \* Processing and analyzing specimens

### 3. On the field:





## Entomology as a Career



- Inspecting sites and collecting samples
- Conducting experiments and research into insecticide effectiveness and environmental impacts

### Where to work?

There are a number of places entomologists can find employment. They include:

- Federal, states, or local governments departments and agencies,
- Colleges and Universities,
- Research institutes,
- Environmental consulting firms,
- Pest- and disease-control organizations,
- Other industries, for example pharmaceutical research, agriculture and food production, and biotechnology companies,
- Multinational agencies, UNICEF, WHO, FAO, NNPC, SHELL Nigeria, Chevron,
- Non Governmental Agencies NGOs,
- Museums,
- Self-employed consultant.

### Career Opportunities

Entomology careers in research involve studying and understanding the anatomy, habits, life histories, ecology, physiology and classification of insects as well as investigating various types of suitable eco-friendly controls. In addition, increasingly basic information is required to supply answers to complex questions and problems involving insects and

their control mechanisms.

### Research Opportunities

Many entomologists are involved with research in Integrated Pest Management IPM which uses all suitable pest control techniques to keep pests below economically injurious levels. Each pest control technique must be designed carefully so that it is environmentally friendly and is compatible with producer and user objectives. But IPM is more than chemical pesticide management — it also includes biological, cultural and sanitary control practices. Once sound, reliable information on insect control is gathered from research, the results are given to farmers and other people who deal with insect pests.

### Teaching Positions

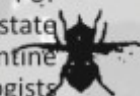
There are many teaching opportunities for entomologists at Universities, Colleges of Education, Polytechnics, Monotechnics and nonprofit educational institutions and organizations. For example, the Agricultural Extension Service in each state plays an important role in providing information on insects and pest control to homeowners, farmers and others thereby helping them to solve insect problems. Another important extension job is the survey entomologist, who reviews all important crops in a given state or area for possible insect outbreaks and alerts farmers and growers before a major problem arises.

### Government

A lot of entomologists work for government agencies. For example, both federal and state governments have quarantine agencies where entomologists are employed to help prevent the entrance of harmful, destructive pests from foreign countries. All plants, fruits, vegetables, artifacts, baggage and animals are examined at international ports of entry and these inspections are performed under the supervision of trained entomologists and other scientists. Entomologists also impose strict quarantines in areas where introduced insects have established a grip. In some cases, roadblocks and inspection stations are erected to prevent the spread of pests. Many states also have laws regulating the activities of pest control operators (exterminators) and pesticide applicators. Entomologists help enforce those important laws and provide technical information and counsel for those in this type of insect control work.

Medical and public health entomologists work for federal, state and local public health departments and deal with pest control problems. Entomologists engaged in public health work in different areas of research and in the control of house flies, mosquitoes, cockroaches, lice, fleas, ticks and many other pests that pose a health hazard or nuisance.

Forensic entomology is a new field of study. Entomologists in this specialty area use their knowledge of insect life cycles and behavior to help police solve crimes.







## Entomology as a Career



Agricultural entomologists work to protect valuable crops from insect pests. Annual losses to agricultural insect pests are enormous and in some areas can result in up to a 25 percent loss in yield. Agricultural entomologists, pest management consultants and pest scouts are involved in research and control pests of crop and animals.

The rapid growth of the forest products industry has set the stage for forest entomology as yearly losses of timber and pulps to insects are substantial. Forest entomologists work to protect these valuable resources from insect pests.

A growing trend is the development of the aquatic and soil entomologists as varieties of insects are essential in the water and soil habitats and are proffering immensely in the two ecosystems

**Commercial Sector**  
Commercial entomologists work for industry rather than public agencies. These jobs can involve field-service work, research, insect-control services and insecticide sales. Selling insecticides is part of the large agribusiness industry that supplies farmers and growers with goods and services.

Some entomologists work to control pests affecting shade trees, lawns, ornamental plants, homes, warehouses, stores, hotels and restaurants. Other work includes spraying farm crops and orchards as well as urban areas for flies and mosquitoes. They can also work as private consultants to the pesticide industry, pest control operators and

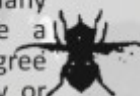
agribusiness (pest management services. For example, entomologists in this field can establish their own company, can work for a small business or can work for a large commercial company.

### Education/Training

Individuals interested in a career in entomology should prepare themselves by taking classes in math and science (biology, zoology, botany, ecology and chemistry), by becoming familiar with the steps of the scientific method and by practicing ways of keeping records and presenting information, data and conclusions. They should conduct investigations of the insect world; visit libraries and stores to find interesting educational books, videos and software about insects; look for summer jobs with companies, universities, state experiment stations or government agencies that deal with insects; or simply spend the day with a museum curator, beekeeper, pest control operator or other professional entomologist to help provide insight into entomological careers and the decision to enter a career in entomology. Through organizations such as the Young Entomologists' Society, young insect enthusiasts can interact with others interested in insect study, trade insect specimens and information, publish interesting information on insects and read about the latest discoveries in insect study.

Most universities do not have a specialized entomology

department but instead offer courses in entomology. Many entomologists receive a general undergraduate degree in Agriculture and biology or zoology and then specialize in entomology at the postgraduate level. Research positions in universities, the government and industrial organizations require either a master's degree or in most cases, a Ph.D. For individuals interested in leading a research team or teaching at the university level, a Ph.D. is required.



### In Summary

An entomologist is a scientist who studies insects. Entomologists have many important jobs, such as the study of the classification, life cycle, distribution, physiology, behavior, ecology and population dynamics of insects. Entomologists also study urban pests, forest pests, agricultural pests, medical and veterinary pests and their control. These scientists may work with beneficial insects like honeybees, silkworms, ladybird beetles and parasitic wasps. Entomologists are researchers, teachers and consultants and can work for private companies, universities or government agencies.

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<https://www.eco.ca/career-profiles/entomologist/#job-duties>





# Photo Splash



ESN President, Prof. Dan Enobakhare, the Secretary and Ass. Secretary on visit to University of Abuja, Vice Chancellor Prof. M. U. Aadikwu



President unveiling the Ground bearing Plaque of the National Secretariats and Insect Museum of ESN at University of Abuja



ESN members and President at the Ground bearing Ceremony in Abuja



## Major Insect Pests Threatening Nigeria's National Food Security in 2016

By Aderolu Ismail Adeniran PhD.

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In Nigeria, two major insects of concerns, in 2016, threatening food security are *Tuta absoluta* (Tomato Leaf miner) commonly called Tomato Ebola and *Spodotera exempta* (commonly referred to as Armyworm) which are defoliators causing severe yield loss. The former ravaged tomato plants in six States of the country (Jigawa, Kano, Katsina, Kaduna, Plateau and Lagos) while the latter devastated maize in all the Southern States of the country. Presently, army worm is becoming an emerging pest in the North Central part of Nigeria causing serious defoliation which eventually results to death of the maize plants. This sudden emergence has been attributed to Climatic Change that brings about favourable environmental conditions for rapid multiplication of both insects.

### Tomato Leaf miner, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae)



Egg

Larva

Pupa

Adult

The leaf miner (*Tuta absoluta*) is a species of moth in family Gelechiidae known by the common names tomato leaf miner or South American tomato moth. It is well known as a serious pest of tomato crops in Europe and South America. It had also been reported to attack Pepper and Iris potato. The pest was first discovered in South America in 1912 where it ravaged many farms before it spread to Europe and later to Asia and now to East and West Africa. It came into Nigeria from Niger Republic. Unfortunately, ordinary pesticides cannot deal with this pest because it multiplies fast.

### Classification

Kingdom: Animalia  
Phylum: Arthropoda  
Subphylum: Hexapoda  
Class: Insecta  
Order: Lepidoptera  
Sub-order: Heterocera  
Family: Gelechiidae  
Genus: *Tuta*  
Species: *T. absoluta* (Meyrick, 1917)

Synonyms: *Phthorimaea absoluta* (Meyrick, 1917)  
*Gnorimoschema absoluta* (Clarke, 1962)  
*Scrobipalpuloides absoluta* (Povolny, 1964; Becker, 1984)  
*Scrobipalpula absoluta* by (Povolny, 1974)





Adult moths are small with body length of 7mm. The female lives 19-15 days and produces up to 260 eggs in 15 days while the male lives between 6-7 days. The adult is grey-brown or silver coloured moth with black spots on the wings. The female lays eggs on tomato plants and the egg develops into a voracious caterpillar that feeds on the leaves, stems and fruit. It is a multivoltine insect that complete twelve generations in a year. At the seventh day of oviposition, the oval-cylindrical egg hatched into creamy-whitish larva (with a black head) which later turns pink or green. The larvae mine mesophyll tissues and make irregular mine on tomato leaf surface and undergo four larval instars. The fully grown larvae drop to the ground in a silken thread and pupate in the soil and sometimes on plant parts such as dried leaves and stem. The pupae are brown and about 6mm long. In the absence of tomato plant, they can complete their life cycle in other solanaceous plants such as *Solanum tuberosum* (potato), *Capsium annuum* (pepper), *Nicotiana tabacum* (tobacco), *Solanum nigrum*, *Datura stramonium*, *Physalis peruviana*, *Lycopersicum puberulum*, *Datura ferox* etc.



The larvae of *Tuta absoluta* is a deadly leaf miner and also called tomato leaf miner because it has a strong preference for the tomato plant, the fruit of which constitute 18 percent of all vegetables consumed by 180 million Nigerian. It is so dangerous; its invasion is irreversible and once it attacks a farm, there is no remedy. It attacks fruits in the open farm and in greenhouses. The moth travels and breeds in swarms and has a reputation for swiftly ravaging tomato cultivation within three days thereby prompting farmers to nickname it Tomato Ebola. The larva feed on the leaves of the tomato plant reducing its photosynthetic capability and depriving it of the nutrient for flowering and fruiting.

Nigeria is the 13th largest producer of tomato in the world and the second after Egypt in Africa. In addition, Nigeria reportedly has a domestic demand for tomatoes put at 2.3 million tons, while it produces only 1.8 million tons annually. The country spent N80 billion (\$400 million) annually on importation of tomato paste, many of which are highly substandard. However, consumers of fresh tomatoes in Nigeria are gradually switching to cheaper cans and pastes, on account of the ravaging insect pest *Tuta absoluta* which has destroyed an estimated 40 percent of anticipated harvest, causing prices to shoot up by 105 percent, from N17,000 to N35,000 per basket during the peak of infestation. In Kano State, more than 90% of 17,000 hectares (42,000 acres) of tomato fields have been destroyed by the insect. Also, many fresh tomato sellers resorted to purchasing the produce mostly from the Republic of Benin and Cameroon, in an effort to bridge the deficit in Nigeria.

#### Signs and symptoms of *Tuta absoluta*





#### General signs and symptoms of *Tuta absoluta* on fruit and stems include:

- Fruits show punctures marks on the surface where the larva has entered the plant,
- Abnormal shape,
- Attacked tomatoes are easy to spot by the exit holes and the dried frass produced by the last larvae as they pupate,
- Rot due to secondary infective agents, and
- Frass (fine powdery material that plant-eating insects pass as waste after they digest plant parts).
- Severely attacked tomato fruits lose their commercial value,
- The caterpillars attack only green fruit.
- Most distinctive symptoms are the blotch-shaped mines in the leaves. Inside these mines both the caterpillars and their dark frass can be found.
- In case of serious infestation, leaves die off completely,
- Mining damage to the plant causes its malformation.
- Due to its high reproductive rate within a short period of time, *T. absoluta* can cause up to 100% loss of tomato fruits if left uncontrolled. .



#### Specific signs and symptoms of *Tuta absoluta* Infestation

##### Leaf Damage Symptoms

- Larvae feed within the leaf lamina, causing severe loss of photosynthetic capability.
- *Tuta* feeding creates a wide, irregular mine.
- Leaf damage can be so severe causing defoliation and death of the plant
- Larvae damage is different from mines made by the leaf miner fly (*Liriomyza* spp), which are narrower and more circuitous.
- The larvae feed between the leaf layers causing irregular mines. They eventually tunnel into the stems or burrow into the fruits.

##### Fruit Damage Symptoms

- Eggs are sometimes laid on young fruit near the calyx end.
- After maturing the fully fed larvae may exit the fruit and pupate on the fruit stalk.
- Eggs may also be laid where two fruits are lying close together.
- Dark frass (caterpillar excrement) can be seen near the entry hole. The larvae will be found inside the fruit on dissection
- Damage to fruit allows fungal diseases to enter, leading to rotting fruit before or after harvest.
- *T. absoluta* attacks tomatoes at all developmental stages, from seedling to mature fruits, in both the field and protected areas.
- Signs of damage on the fruit are often observed under the calyx (green leaf-like organ above the fruit). Cracks and crevices on containers should be checked for the presence of pupae

#### Management of Tomato leaf miner, *Tuta absoluta*

As larvae are internal feeders it is difficult to achieve an effective control through application of chemical insecticides. Moreover, *T. absoluta* can rapidly evolve strains with reduced





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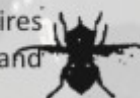
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susceptibility to insecticides that were previously effective. Failure by synthetic insecticides had also been reported in many countries. Therefore, management of this endemic pest requires coordinated efforts of research scientists, extension agents and growers in invaded countries and those at risk.



Presently, farmers rely heavily on pesticide sprays to control *T. absoluta*, and the pest quickly develops resistance to chemical pesticides. The pest cannot be killed by contact pesticides because of concealed larval feeding. The proposed strategic approach to minimize the impact of *T. absoluta* damage in tomatoes is an IPM strategy that is based on:

- Removal of alternate host plants,
- Prompt removal and destruction of infested fruits,
- Mass trapping with sex pheromone lures,
- Bio-pesticides such as *Bacillus thuringiensis* and *Azadiracta indica* (neem) and bio-control agents, especially parasitoids. These technologies were developed and are being used in other parts of the world.

#### Proposed Control Measure for *Tuta absoluta*

The young larvae and eggs of *T. absoluta* are difficult to come-by because its eggs are very tiny and the young larvae are internal feeders. To date, synthetic pesticide still remain an effective means of controlling these pest and this has been discouraged for its adverse effects on natural enemies, soil organisms, predators, aquatic organism and human health. Some of the adverse effects include but not limited to: development of resistant strains, broad-spectrum; bioaccumulation and biomagnifications of residues; toxic residues in foods; outbreak of secondary pests; pest resurgence; health hazards and loss of soil fertility. Therefore, the aim of this write up is to sensitize stakeholders on the need to develop an alternative control measure that is ecologically friendly and environmental safe for managing *T. absoluta*.

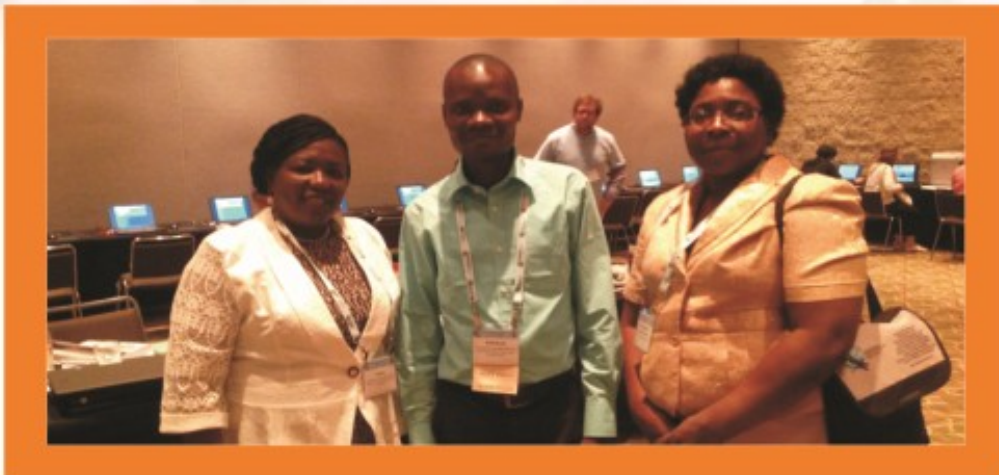
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# Photo Splash



ESN members at the ICE 2016 Congress in Orlando, USA





# Photo Splash





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 ESN/0003 AJOMALE, S.V.A.  
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 ESN/0005 BAKER, E.F.I.  
 ESN/0006 BALDRY, D.A.T.  
 ESN/0007 BOOKER, R.H.  
 ESN/0008 BOWDEN, J.  
 ESN/0009 CASWELL, G. Harry  
 ESN/0010 CORNES, M.A.  
 ESN/0011 DEEMING, John C.  
 ESN/0012 DICKSON, H.  
 ESN/0013 DONNELLY, J.  
 ESN/0014 EGUAGIE, William E.  
 ESN/0015 EVERARD, C.O.R.  
 ESN/0016 GERARD, B.M.  
 ESN/0017 HAYWARD, John A.  
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 ESN/0019 KOGBE, J.O.S.  
 ESN/0020 LEGER, R.G.T.  
 ESN/0021 LIBBY, J.L.  
 ESN/0022 OBOITE, Albert U.  
 ESN/0023 ODIYOMA, V.B.  
 ESN/0024 OKIWELU, S.N.  
 ESN/0025 OKWAKPAM, B.A. (Late)  
 ESN/0026 OSISANYA, E.O.  
 ESN/0027 PHIPPS, J.  
 ESN/0028 PIPPET, J  
 ESN/0029 QUERESHI, A.H.  
 ESN/0030 RILEY, J.  
 ESN/0031 RIORDAN, K.  
 ESN/0032 TAYLOR, T. Ajibola  
 ESN/0033 TOYE, Samuel Afolabi (Late)  
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 ESN/0036 ENE, J.C.  
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 ESN/0099 ONU, Isa  
 ESN/0100 UKWUNGWU, Mark Nwoye





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ESN/0106	SASTAWA, B.	ESN/0157	OLOFU, Daniel Abah
ESN/0107	PITAN, O. R.	ESN/0158	OSUNLOLA, O.S.
ESN/0108	KEMABONTA, Kehinde O.	ESN/0159	OTITODUN, Olufunke Grace
ESN/0109	TAIWO, Bolaji	ESN/0160	OWOADE, Rasheed Adeyinka
ESN/0110	OIGIANGBE, O.N.	ESN/0161	PESSU, Patricia Onoghoexe
ESN/0111	BANJO, A.D.	ESN/0162	UMEOZOR, Odidika Christian
ESN/0112	OLATUNDE, G.O.	ESN/0163	UMOETUK, Sylvia Bassey
ESN/0113	EGWURUBE, Elizabeth Agbenu	ESN/0164	ASAWALAM, E.F.
ESN/0114	AKPABIO, Eno Essien	ESN/0165	EMEASOR, K.C.
ESN/0115	LALE, N.E.S.	ESN/0166	IDOWU, A.Babatunde
ESN/0116	ASHAMO, Michael Olufemi	ESN/0167	OSIPITAN, A.A.
ESN/0117	OKUNADE, Samson O.	ESN/0168	NWAUBANI, Samuel Ihueze
ESN/0118	KOLO, Isa N'Usman	ESN/0169	UMEH, V.C.
ESN/0119	UKWELA, Monday Unwabune	ESN/0170	MUSA, Abdulrasak Kannike
ESN/0120	OMOLOYE, Adebayo A.	ESN/0171	BABARINDE, Samuel Adelani
ESN/0121	OPARAEKE, Alphosus Mbonu	ESN/0172	ADEBAYO, J.A.
ESN/0122	TOBIH, Francis Okeremute	ESN/0173	OYEGOKE, Oyebamiji Oyewole
ESN/0123	ABBA, Abdul-Azeez	ESN/0174	AKINTOLA, A.J.
ESN/0124	ABDULLAHI, Baba Umaru	ESN/0175	ALU, O.S.
ESN/0125	ABDULLAHI, Jamila	ESN/0176	ALABI, Olajumoke
ESN/0126	ABDULRAHAMAN, Hauwa T.	ESN/0177	ABEGUNDE, Thaddeus Towoju
ESN/0127	ABDUSALAM, Kola Suleiman	ESN/0178	ADULOJU, Solomon Olalekan
ESN/0128	ABODUNRIN, Joseph Oyewole	ESN/0179	AHMED, Buba Ibrahim
ESN/0129	ADAIGBE, Victor Chuks	ESN/0180	AKINNEYE, Joseph O.
ESN/0130	ADAMU, Rabi Salu	ESN/0181	AKINSOLA, Grace Folasade
ESN/0131	ADEBOTE, David	ESN/0182	AKINTOYE, Maroof Adeniyi
ESN/0132	AGBIDYE, Francis Sarwuan	ESN/0183	AKINWALE, Mohammed-Monzoor Adewole
ESN/0133	AJAYI, Folorunsho Abiodun	ESN/0184	AKPAN, A.J.
ESN/0134	AJAYI, Olufunmilayo Eunice	ESN/0185	AKPAN, Edna A.
ESN/0135	AJIBOYE, T. Oluwafemi	ESN/0186	ALHAJI, Baba Bida
ESN/0136	ANIOKE, S.C.	ESN/0187	ALHASSAN, Tswako Maji
ESN/0137	ANKYAMBE-AKUE, Kbalagh Eric	ESN/0188	ALIU, Augustine S.
ESN/0138	BAMAIYI, Lucius Joseph	ESN/0189	ANASO, Chinwe E.
ESN/0139	BEN-KALIO, Gloria	ESN/0190	ARANNILEWA, Samuel Taiwo
ESN/0140	BOB-MANUEL, Rosetta	ESN/0191	AWE, Omolara O.
ESN/0141	DENLOYE, A.A.B.	ESN/0192	AYAKPAT, Henrietta Ngozi
ESN/0142	EKANEM, Mfon Sunday	ESN/0193	BABA, Jeremiah Danjumah
ESN/0143	EKESI, Sunday	ESN/0194	CHEREN, Samuel
ESN/0144	EMEHUTE, J.K.U.	ESN/0195	CHUKWU, Stella Nwakaego
ESN/0145	EMOSAIRUE, Stephen O.	ESN/0196	DOSUNMU, Roberta T.
ESN/0146	FASASI, K.A.	ESN/0197	DUNA, Madu Mailafiya
ESN/0147	IGBINOSA, B. Igbo	ESN/0198	DUNGUM, Selzing
ESN/0148	KOLADE, Kolawole Oyekola	ESN/0199	EWUIM, Chima Sylvanus
ESN/0149	MAFUYAI, Hayward B.	ESN/0200	GBAYE, Olajire Ayodele
ESN/0150	MAKANJUOLA, W.A.	ESN/0201	GEORGE, Jonathan Butcher Danladi
ESN/0151	OGBOGU, Sylvester S.	ESN/0202	GWADI, Kaleson Wesley
		ESN/0203	ILIYASU, Abubakar Sadiq





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|----------|--------------------------------|----------|-----------------------|
| ESN/0204 | IMANDEH, Godwikn Nyiutaha      | ESN/0256 | UKOROJE, R.B.         |
| ESN/0205 | ISHAKU, Abubakar               | ESN/0257 | COMMANDER, T.         |
| ESN/0206 | ISHUWA, Miriam Nguuma          | ESN/0258 | SOW, J.G.             |
| ESN/0207 | JAMES-RUGU, Naomi N.           | ESN/0259 | ISONG, I.U.           |
| ESN/0208 | KABIR, B.G.J.                  | ESN/0260 | FAKUNLE, B.A.         |
| ESN/0209 | KASHINA, Boniface David        | ESN/0261 | ADU, B.W.             |
| ESN/0210 | KOGI, Ezekiel                  | ESN/0262 | OKE, O.K.             |
| ESN/0211 | KOROKA, Hassan Nurudeen Zubair | ESN/0263 | IBRAHIM, K.           |
| ESN/0212 | KUMBE, L.B.N.                  | ESN/0264 | POPOOLA, K.O.K.       |
| ESN/0213 | LAWAN, Muhammed                | ESN/0265 | ECHEREOBIA, C.O.      |
| ESN/0214 | LAWAL, A. Idris                | ESN/0266 | LAWAL, A.A.           |
| ESN/0215 | LAWIYE, Abare Mohammed         | ESN/0267 | ADEMOLU, K.O.         |
| ESN/0216 | MAAS'UD, Mohammed Izom         | ESN/0268 | ADELEKE, M.A.         |
| ESN/0217 | MADU, Bukar A.                 | ESN/0269 | OGUNFUNMILAYO, A.O.   |
| ESN/0218 | MAINA, Yahya T.                | ESN/0270 | IBRAHIM, Nasir Dole   |
| ESN/0219 | MALGWI, Anna M.                | ESN/0271 | UMAR, Y.F.            |
| ESN/0220 | MBAH, C.E.                     | ESN/0272 | YAHAYA, M.A.          |
| ESN/0221 | MOHAMMED, Jiya Mohammadu.      | ESN/0273 | YAHAYA, M.M.          |
| ESN/0222 | MOHAMMED, Aliyu                | ESN/0274 | BANDIYA, H.M.         |
| ESN/0223 | MOLTA, Norman B.               | ESN/0275 | DANJUMA, B.           |
| ESN/0224 | MWANSAT, Georgina Samuel       | ESN/0276 | OYEYEMI, B.F.         |
| ESN/0225 | NOCK, Haruna Ishaya            | ESN/0277 | AWODIRAN, M.O.        |
| ESN/0226 | NONGO, Nyiyongo Nicholas       | ESN/0278 | KEHINDE, T.O.         |
| ESN/0227 | NWILENE, F.                    | ESN/0279 | FADAMIRO, H.          |
| ESN/0228 | NZEKWU, Anthony Nmora          | ESN/0280 | ANIKWE, J.C.          |
| ESN/0229 | OGEDEGBE, A.B.O.               | ESN/0281 | NWOSU, C.J.           |
| ESN/0230 | OGBALU, O.K.                   | ESN/0282 | ADESIYAN, S.A.        |
| ESN/0231 | OGWURIKE, Bose A.              | ESN/0283 | ADEYEMI, N.A.         |
| ESN/0232 | OKOH, Evelyn Kehinde           | ESN/0284 | OYERINDE, A.A.        |
| ESN/0233 | OMOTOSHO, O. Temitope          | ESN/0285 | AKINWUMI, F.O.        |
| ESN/0234 | OMUDU, Edward Agbo             | ESN/0286 | OKORE, O.O.           |
| ESN/0235 | OSENI, Aminu Mohammed          | ESN/0287 | IHEJIRIKA, G.O.       |
| ESN/0236 | OYENUGA, Babatunde Adefenwa    | ESN/0288 | OYELADE, O.J.         |
| ESN/0237 | OTHMAN, Bukar                  | ESN/0289 | OYEWOLE, I.O.         |
| ESN/0238 | OZOLUA, Kelly O.O.             | ESN/0290 | OJIANWUNA, C.C.       |
| ESN/0239 | SHAIIDA, Stephen Saikiu        | ESN/0291 | NWAKAEGHO, M.         |
| ESN/0240 | SHORUNGBE, Adewale Ayodeji     | ESN/0292 | AYANSOLA, A.A.        |
| ESN/0241 | SOSAN, Mosudi Babatunde        | ESN/0293 | ASOGWA, E.U.          |
| ESN/0242 | SOYELU, Olalekan               | ESN/0294 | FOLORUNSHO, D.O.      |
| ESN/0243 | SULEIMAN, Abba                 | ESN/0295 | AYANNUGA, A.J.        |
| ESN/0244 | TURAKI, Joy Z.                 | ESN/0296 | OPOOSUN, Olufemi      |
| ESN/0245 | UMAR, Abba                     | ESN/0297 | MOKWUNYE, I.          |
| ESN/0246 | UMARU, A. Baba                 | ESN/0298 | OLAYIWOLA, M.A.       |
| ESN/0247 | YUSUF, Abdulhammed Umar        | ESN/0299 | OKE, Abiola           |
| ESN/0248 | YUSUF, Baba Ali                | ESN/0300 | ALAMENE, A.           |
| ESN/0249 | YUSUF, S.R.                    | ESN/0301 | AMACHREE, Esther Ibim |
| ESN/0250 | TUKUR, Z.                      | ESN/0302 | BAWO, D.D.S.          |
| ESN/0251 | AKINWANDE, K.L.                | ESN/0303 | BENSON-EDE, W.C.      |
| ESN/0252 | OLUJIDE, M.G.                  | ESN/0304 | DIMKPA, S.            |
| ESN/0253 | ALAMENE, A.                    | ESN/0305 | DOSUNMU, R. T.        |
| ESN/0254 | USMAN, Z.                      | ESN/0306 | UCHE, Fidelity Belta  |
| ESN/0255 | MINIMAH, P.                    | ESN/0307 | ENWE, N.              |





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|----------|-----------------------------------|-----------|---------------------------------------|
| ESN/0308 | UZAKAH, Richard                   | ESN/0359  | OSHAKUADE, Thompson                   |
| ESN/0309 | MORRIS, J. G.                     | ESN/0360  | OLOGUN, Pius Foluso                   |
| ESN/0310 | THOMAS, C                         | ESN/0361  | OYINLOYE, Naomi Adedoyin              |
| ESN/0311 | ZAKA, U.                          | ESN/0362  | NOUTCHA, Aline Edith                  |
| ESN/0312 | NDAM, O. N.                       | ESN/0363  | GBARAKORO, Tambeke Normu              |
| ESN/0313 | YULA, H. Z.                       | ESN/0364  | NWABUEZE, Ebere                       |
| ESN/0314 | OKOROAFOR, Eunice                 | ESN/0365  | GEORGENILL, Chiemezie C.              |
| ESN/0315 | BANKE, R.O. K.                    | ESN/0366  | MOHAMMED, Dalhatu Lawal               |
| ESN/0316 | ANDA, D.A.                        | ESN/0367  | AJAYI, Shindi Hassan                  |
| ESN/0317 | AHOM, Rosemary I.                 | ESN/0368  | OGBEDEH, Kenedy Okwudili              |
| ESN/0318 | OYELADE, O.O.                     | ESN/0369  | NWOKEJI, Ephraim M.                   |
| ESN/0319 | ALABI, J.                         | ESN/0370  | UWASOMBA, Chukwudi Festus             |
| ESN/0320 | OLANIRAN, O.A.                    | ESN/0371  | EHISIANYA, Collins N.                 |
| ESN/0321 | UGWU, Juliana Amaka               | ESN/0372  | WALI, Abdullahi A.                    |
| ESN/0322 | ONEKUTU, Amana                    | ESN/0373  | JATAU, Abdullahi Jatau                |
| ESN/0323 | AJELARA, Kafayat Oluwakemi        | ESN/0374  | NWOSU, Luke C.                        |
| ESN/0324 | ALAFIA, Azeezat Oyindamola        | ESN/0375  | ALAYANDE, Musbaudeen Olayinka         |
| ESN/0325 | BABALOLA, Oluwaseun O.            | ESN/0376  | MUSA, Ishaku                          |
| ESN/0326 | UKPO, William                     | ESN/0377  | MAGAJI, Turaki Bitrus                 |
| ESN/0327 | OYEDIRAN, Isaac o.                | ESN/0378  | BAWA, Livinus Yakubu                  |
| ESN/0328 | ANYIM, Alozie                     | ESN/0379  | KWANASHIE, Adobe                      |
| ESN/0329 | AGUNBIADE, Tolulope Adebimpe      | ESN/0380  | SADIKU, Bukola Toyin                  |
| ESN/0330 | OYEDOKUN, Adegoke Victor          | ESN/0381  | AMUSAN, Babatunde O.                  |
| ESN/0331 | LAWAL, Olusegun Adebayo           | ESN/0382  | UDAH, Onehireba                       |
| ESN/0332 | FASUNWON, Bamidele temitope       | ESN/0383  | AROGUNDADE, Funlola Justina           |
| ESN/0333 | BANJO, Folake M.                  | ESN/0384  | ODEDEYI, Elizabeth Funmilayo          |
| ESN/0334 | ADEOYE, Temitope                  | ESN/0385  | ABDULLAHI, Nurudeen                   |
| ESN/0335 | ADEROLU, I. Adeniran              | ESN/0386  | ADEBAYO, Raphael Abiodun              |
| ESN/0336 | OKORIE, Patricia Nkem             | ESN/0387  | ADESINA, Jacobs Mobolade              |
| ESN/0337 | ADEKANMI, Jeremiah O.             | ESN/0388  | AFOLABI, Lawrence Adebayo             |
| ESN/0338 | IBITOYE, Olufisayo                | ESN/0389  | OLA-SALAWU, Bukola Bunmi              |
| ESN/0339 | ADETORO, Fouad                    | ESN/0390  | ONI, M.O                              |
| ESN/0340 | ANOGWIH, Joy                      | ESN/0391  | ADEBO Cosmos Taiwo                    |
| ESN/0341 | SADIKU, Bukola                    | ESN/0392  | OGUNGBITE, Olaniyi Charles            |
| ESN/0342 | ODUOLA, Adedayo                   | ESN/0393  | KAYODE, Olufunke Yemisi               |
| ESN/0343 | James Adebayo OJO                 | ESN/0394  | ADEYEMO, Adenike Christy              |
| ESN/0344 | Abiodun JODA                      | ESN/0395  | AKINKUROLERE, Rotimi Oluwafemi (Late) |
| ESN/0345 | Olaniyi Olamide IJADARE           | ESN/0396  | ILEKE, Kayode David                   |
| ESN/0346 | Bukola Toyin SADIKU               | ESN/0397  | ALIYU, G. Mungadi                     |
| ESN/0347 | Luke Chinaru NWOSU                | ESN/0398  | PETGRAVE, Meyer Godfrey               |
| ESN/0348 | Onehireba UDAH                    | ESN/0399  | ENYI, Nwanyibuaku                     |
| ESN/0349 | Babatunde O. AMUSAN               | ESN/0400  | ADOLPHUS, Okachuku Junior             |
| ESN/0350 | IMOIBE, Tunde Ohiokhioya Thaddeus | ESN/0401  | ISAH, Musa Dan'azumi                  |
| ESN/0351 | ROTIMI, Johnny                    | ESN/0402  | NNAMEZIE, O. Nwamaka                  |
| ESN/0352 | OLOMUKORO, John Ovie              | ESN/0403  | NWANKPA, Akachukwu Pius               |
| ESN/0353 | EKRAKENE, Taidi                   | ESN/0404  | TINOK, Andrew                         |
| ESN/0354 | OMOIGBERALE, Michael Osasele      | ESN/0405  | ONOTU, Christopher Sunny              |
| ESN/0355 | IYARE, O. Osadolor                | ESN/0406  | ANCHAU, Rukayya Garba                 |
| ESN/0356 | ANENI, Thomas Idemudia            | ESN/0407  | AMAWULU, Ebenezer                     |
| ESN/0357 | OKAKA, Christopher Ehighaukhuo    | ESN/ 0408 | OKOM, Monday Ajigah                   |
| ESN/0358 | EKPERUSI, Ogheneruemu Abraham     | ESN/0409  | USMAN, Baba Musa                      |
|          |                                   | ESN/0410  | SAMUEL, Rebecca Naphtali              |
|          |                                   | ESN/0411  | EGBON, Ikponmwosa Nathaniel           |
|          |                                   | ESN/0412  | HAMMAN, I. Sunday                     |





ESN/0413	MBAH, Ogbonnaya Ibomus	ESN/0465	USMAN, Fatima
ESN/0414	OGUNDARE, Moses Odunayo	ESN/0466	SHEHU, Maryam Ibrahim
ESN/0415	AKEWETA, Emmanuel Samaila	ESN/0467	KADIRI, Onuchejo
ESN/0416	KWAIFA, Nasiru Muhammed	ESN/0468	ABDUL, Mohammed Sarki
ESN/0417	WAHEDI, Jasini Alexander	ESN/0469	DATIJO, Shehu Abdulfalal
ESN/0418	UBAIDU, Mani	ESN/0470	MUHAMMAD, Abdulhadi
ESN/0419	IDACHABA, Peter Napoleon	ESN/0471	USMAN, Maryam Shehu
ESN/0420	ABDULAH, Sule Ojo	ESN/0472	SHETTIMA, Fatima A.T
ESN/0421	HABIBU, Danjuma	ESN/0473	ABAJUE, Maduamaka Cyriacus
ESN/0422	AHMED, Joy. E	ESN/0474	IHIONU, Godwin Chiwuike
ESN/0423	OGAH, Emmanuel Omogo	ESN/0475	TSAKMA, Usman Kabiru
ESN/0424	OKOREDJE, K.S	ESN/0476	IWOMI, Faith Chinyere
ESN/0425	ONYIRIOHA, Caroline. U	ESN/0477	EWUIM, Ugochukwu Rachael
ESN/0426	JONAH, Alice Onyeche	ESN/0478	MOGBO, Tochukwu Chinedu
ESN/0427	UKEH, Donald. A	ESN/0479	ONYIDO, Angus Ejidikeme
ESN/0428	MADUIKE, Eberechukwu. M	ESN/0480	ONONYE, Benjamin Uzonna
ESN/0429	LAW-OGBOMO, Kolawole Edomwonyi	ESN/0481	UGOCHUKWU, Godwin Chidozie
ESN/0430	ESSIEN, Rosemary Anietie	ESN/0482	NWANKWO, Edith N.
ESN/0431	SAMBO, Fatimo	ESN/0483	OGBUSU, Vivian Onyinyechukwu
ESN/0432	NGWAMAH, Jacob Sule	ESN/0484	NGENEGBO, Uche
ESN/0433	KASANG, Naman	ESN/0485	OKEKE, John Joseph
ESN/0434	VADLIA, Janet. P	ESN/0486	EBBUCHE, Chukwudi Michael
ESN/0435	YELMI, Baraya Kyala	ESN/0487	CHIMA, Gladys Nneka
ESN/0436	DALLA, Chatcham Victor	ESN/0488	AKUNNE, Chidi Emmanuel
ESN/0437	TIESE, Timothy	ESN/0489	DURU, Vincent Chiagozie
ESN/0438	KABEH, Joshua Dauda	ESN/0490	Ukonze, Chikaodili B.
ESN/0439	ARINGBANGBA, Rufus Oluwatuyi	ESN/0491	OKAFOR, Kasarachi Patricia
ESN/0440	ADETOGO, Temidayo Adekemi	ESN/0492	ONAGBOLA, Ebenezer Oloyede
ESN/0441	ADANANU, Sani Adamu	ESN/0493	EZRA, Abba
ESN/0442	ATTAH, Okau Achigili	ESN/0494	LATEEF, Saheed Adekola
ESN/0443	AROWOLO, Bukola Olajoke E	ESN/0495	ABDULBAKI MUDASHIR KIJAN
ESN/0444	OGAH, Emmanuel Ugbede	ESN/0496	ADEOTI, Omolola Folasade
ESN/0445	OMOREGBEE, Jude	ESN/0497	KEHINDE EZEKIEL AYOBAMI
ESN/0446	MUSA, Wada Doka	ESN/0498	AJIBOYE, Olalekan Gbolahan
ESN/0447	ABDULAH, Audu	ESN/0499	ORE, Hassanat Taiwo
ESN/0448	ALO, Emmanuel Babatope	ESN/0500	ADELAJA, Olukayode James
ESN/0449	TAME, V.T	ESN/0501	OLAGUNJU, Oluwasewa Dorcas
ESN/0450	ADEYEYE, Musefiu Okunola	ESN/0502	IFALADE, Judith Adejoke
ESN/0451	HUSSAINI, Adamu Ladags	ESN/0503	OJUMoola, Olusegun Adebayo
ESN/0452	OAYA, Clement Samuel	ESN/0504	AIYEBBUSI, Zainab Oluwakemi
ESN/0453	DUNUWEL, Danzaria Musa	ESN/0505	LAIDI MIUDEEN TELLA
ESN/0454	USMAN, Musa	ESN/0506	GAMBO, Abdullahi
ESN/0455	ATIJEGBE, Sylvester Richard	ESN/0507	BALLA, Bitrus Elizabeth
ESN/0456	ADEDUNTAN, Sunday Adeniyi	ESN/0508	DEGRI, Michael Mamman
ESN/0457	ABIODUN, Joseph	ESN/0509	NAHUNNARO, Hycenth
ESN/0458	ADAMU, Bashir Kagu	ESN/0510	YAKUBU, Appollm Iliya
ESN/0459	BELLO, Aishat Imam	ESN/0511	SULEIMAN, Mohammed
ESN/0460	GAIYA, Audu Adamu	ESN/0512	AMEH, I.G
ESN/0461	ABDULLAHI, Ramatu Ado	ESN/0513	IBRAHIM, Abdullahi
ESN/0462	OGAR, Mabel Ungie-Ada	ESN/0514	ABUBAKAR IBRAHIM ANKA
ESN/0463	SABO, Elidad	ESN/0515	AIKI, Istifanus
ESN/0464	MUSA, Aisha Lami	ESN/0516	DIALOKE, Sunday Ani
		ESN/0517	UTONO, Ismail Mohammed





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|----------|-----------------------------------|----------|-------------------------------|
| ESN/0518 | AHMED, Inwa Adamu                 | ESN/0568 | BARDE, Auwal Alhassan         |
| ESN/0519 | ABDULMALIK, Usman                 | ESN/0569 | ONWIH, Etim Efiog             |
| ESN/0520 | NWOYE, Z. Ifeamaechi              | ESN/0570 | ONWIH, Arit Etim              |
| ESN/0521 | LAWAL, Fatima                     | ESN/0571 | ALI, Cecilia Onyawole         |
| ESN/0522 | JIBRIN, Dahiru Mohammed           | ESN/0572 | OBHIOKHENAN, Ambrose Anegbode |
| ESN/0523 | OWOLABI, Yetunde Hannah           | ESN/0573 | OBI, Okechukwu Anthony        |
| ESN/0524 | NATALA, Audu Joseph               | ESN/0574 | AKINSETE, Israel Oluwansola   |
| ESN/0525 | OKEKE, Ebere M.A                  | ESN/0575 | BARNABAS, Banji Babafemi      |
| ESN/0526 | IWUEZE, Miriam Okwudili           | ESN/0576 | ADENIYI, Kamoru Abdulazeez    |
| ESN/0527 | OBIDIGBO, Chinenye Francisca      | ESN/0577 | SALIHU, Ibrahim Maikudi       |
| ESN/0528 | EZENWA, Patience Chineyeaka       | ESN/0578 | SADIQ, Ibrahim                |
| ESN/0529 | UGWUANYI, Ifeoma Kosisochukwu     | ESN/0579 | OYIBO-USMAN, Khadijat Ahuoiza |
| ESN/0530 | OKOYE, Kingsley Chukwuebuka       | ESN/0580 | APEV, Mson John               |
| ESN/0531 | EZIHE, Chukwuebuka Kingsley       | ESN/0581 | SANI, Baba Wudil              |
| ESN/0532 | THEOPHILUS, Rosemary Uju          | ESN/0582 | MANYI, Manasseh Msugh-ter     |
| ESN/0533 | CHUKWUEZI, Chiamaka Elizabeth     | ESN/0583 | IBOYI, Ojonugwa Mark          |
| ESN/0534 | GAIUS, James Chukwudi             | ESN/0584 | AZEEZ, O. Moshood             |
| ESN/0535 | COBHAM, Akabom Edet               | ESN/0585 | GBATE, Mohammed               |
| ESN/0536 | ASALA, Samuel Abayomi             | ESN/0586 | OLAYEMI, I.K.                 |
| ESN/0537 | ASALA, Shatu Wudiri               | ESN/0587 | NNAMONU, Lami                 |
| ESN/0538 | EJIOFOR CHARLES EJIKE             | ESN/0588 | OCHEME, Faith Odije           |
| ESN/0539 | ANJORIN, Toba Samuel              | ESN/0589 | OBADIAH, Happiness Igwe       |
| ESN/0540 | SHAWULU, James Clinton            | ESN/0590 | SHEHU, Usman                  |
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# NEWSLETTER



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## Insect Science: A Veritable Tool for Job Creation and Sustainable Development

Insects are extremely successful animals and they affect many aspects of our lives, despite their small size. All kinds of natural and modified ecosystems, both terrestrial and aquatic, support communities of insects that present a bewildering variety of life styles, forms and functions. Ecologies of insects are highly diverse and often they dominate food chains and food webs in biomass and species richness.

They may be aquatic or terrestrial throughout, or during part of their lives. Their life styles encompass solitary,

gregarious, sub social and highly social modes. They may be conspicuous or concealed and active by day or night. Insect life cycles are adapted to a variety of abiotic conditions, including seasonal extremes of heat and cold, wet and dry, and notably to unpredictable climate.

Therefore, insects should be studied for many reasons.

Population growth, urbanization and the rising middle class have increased the global demand for food, especially animal based protein sources. The traditional production of animal feed such as fishmeal, soy and grains needs to be further intensified in terms of resource efficiency and extended through the use of alternative sources. By 2030, over 9 billion people will need to



be fed, along with the billions of animals raised annually for food and recreational purposes and as pets. Moreover, externalities such as land and water pollution from intensive livestock production and over-grazing are leading to forest degradation, thereby contributing to Climate Change and other

### FROM ESN PRESIDENT



I wholeheartedly welcome all of you fellow entomologists to the 47th Annual Conference of our dear Society holding this year in Ilorin. This conference is coming just after one year of the celebration of the 50th anniversary in Lagos last October. Although Ilorin/ Ogbomosho branch has hosted many ESN conferences in the past, this year's conference is significant as it marks the end of my tenure as President of ESN (2012-2016) twelve months after the Golden Jubilee in the University of Lagos.

Since the inception of ESN in 1965, members have been working hard to update the knowledge of insect science, its application and exploiting new frontiers in Nigeria through various conferences, institutions, workshops, seminars in local, national and international fora. This has created jobs for young Nigerian entomologists through research, teaching and field application of insect knowledge. It is no wonder therefore that the society has aptly chosen the title of this year's conference as "Insect Science: A veritable tool for job creation and sustainable development". The recent outbreak of tomato pest, *Tuta absoluta* in some states in Nigeria took a dramatic turn in which Nigerian entomologists were not invited but "experts" were said to have been consulted in Kenya by government for solution. A locally developed insecticide in Nigeria was eventually used. In this conference, the Director General of NAFDAC will give a keynote address on "The management, regulation, evaluation and monitoring of pesticides in Nigeria" while Sir Ikemefuna will be speaking on "Insects and the insecticide weapon in Nigeria: prospects, challenges and the way forward".

It is noteworthy to state that this arrangement of keynote address had long been made by ESN and preceded the tomato insect pest outbreak. Our Society is a forward looking scientific organization which was established just five years after our Independence in 1960. Fellow entomologists raise your shoulders high and continue with your intellectual pursuit of the knowledge of insect science as we now have a Secretariat/ Insect Museum site domiciled in University of Abuja.

**Professor Dan A. Enobakhare, FESN, KSM**  
National President



Prof. D.A. Enobakhare FESN, KSM - *President*  
Dr K.A. Kemabonta - *Vice President*  
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**Dr B.D.J. Kabir** - *Chairman, Maiduguri Branch*  
**Dr M.M. Degri**  
*- Chairman, Yola/Jalingo/Mubi Branch*

## Honourary Fellows of ESN (HFESH)

Major General Sam Momah - 1996  
Alhaji Jimeta Gambo - 1996  
Nse Desmond Iwuagwu - 1996  
Mr Bertram Obi - 1996  
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Hajiya Falmata Mani - 1997  
Mr. B.S. Chandrashekara - 1997  
Dr Shetima Mustapha - 1997  
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HRH Igwe Peter Anukwu - 1998  
Wing Commander F.U. Ukaegbu - 1998  
Chief (Engr) Ifeanyi Nwokoye - 1998  
Alhaji (Dr) Ado Bayero - 1999  
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Alhaji Ahmad Muhammad Makarfi - 2000  
Alhaji Muhammadu Liman - 2001  
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Chief Emmanuel O. Adesoye - 2002  
Hon. Timothy T. Sule - 2006  
Dr Emmanuel Orhemba - 2006  
Alhaji (Dr) Isa Mustapha Agwai - 2006  
Sir Patrick N. Ikemefuna - 2006  
Prof. Isaac Folorunso Adewole - 2011  
Prof. Solomon O. Badejo - 2011  
Mr. Abisoye Ayorinde - 2011  
Prof. M.U. Adikwu - 2014  
Dr. Sulaiman Abubakar - 2014  
Alhaji Abubakar Tanko Haruna - 2014

### KWARA BRANCH

Prof Ahmed has been appointed Deputy Vice Chancellor (DVC) Academic of Kwara State University KASU!

### MAKURDI / LAFIA BRANCH

Professor Buba Ibrahim Ahmed Appointed as a Member of Tertiary Education Fund Tetfund's Standing Committee on Research and Development

### ABUJA BRANCH

Dr, A. A. Oyerinde was elected Assistance Secretary, Nigerian Apicultural Platform and member interministerial Committee on Beekeeping

### ABEOKUTA BRANCH

Miss OYINLOYE Naomi of FUNAAB and Mr SALAU Adedayo Richard of OOU successfully defended their M.Sc. Zoology (Entomology) and M.Sc. Medical Entomology theses respectively in the month of June, 2016. Dr A.A. Osipitan was appointed Chairman of TIMTEC (Examination time table committee) at FUNAAB.

Prof A.B. Idowu  
(Branch Chairman)

### ILE-IFE BRANCH

Professor Sylvester S. Ogbogu delivered the 287<sup>th</sup> Inaugural Lecture of Obafemi Awolowo University, Ile-Ife titled "Urbanization, Freshwater Biodiversity Conservation and the Critical Role of Aquatic Insects" on Tuesday, May 24, 2016 at Oduduwa Hall, Obafemi Awolowo University, Ile-Ife.

Professor 'Tola Badejo resumed back to Obafemi Awolowo University, Ile-Ife after his service at Wesley University of Science and Technology, Ondo (WUSTO) as Pioneer Vice-Chancellor for 7 years.

Dr. M.B. Sosan  
Chairman, *ESN Ile-Ife Branch*

