





PESTICIDE USE AMONG SMALL SCALE WOMEN FARMERS

A SNAPSHOT SURVEY BY AAPN AND SWOFON

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With Support From



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INTRODUCTION

Small-scale women farmers play a significant role in Nigeria's agricultural sector; they make up 70% of the workforce and produce 60% of the food Nigerians consume¹. Many of them depend on synthetic chemical pesticides in their farm activities, mostly based on conventional farming methods.

In conventional agriculture, pesticides are a central tool used to control insects, weeds and diseases. With their use, farmers seek to increase productivity by minimizing crop losses. Despite these benefits, pesticides have many harmful human and environmental impacts, including on biodiversity, water and soil health.

Research studies have shown that most small-scale farmers in Nigeria have little knowledge about the associated health and environmental implications of the pesticides they use, nor do they know about their local and international regulatory status. As a result, they are unable to take requisite precautions to protect their health and environment. Where awareness of the adverse impacts of pesticides exists, farmers often lack the resources to buy the necessary personal protection equipment².

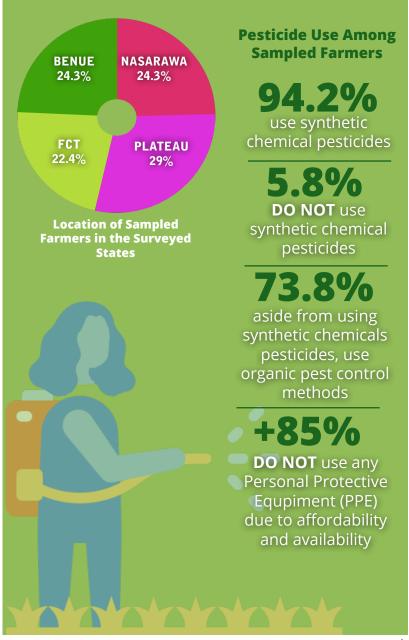
Because of the central role women continue to play in most families and households, pesticide-related dangers small-scale women farmers encounter are likely to affect not only themselves but also their children and family. They should therefore be able to evaluate pesticide risks and make an informed decision on food and human safety every day.

Against this backdrop, the Small-scale Women Farmers Association in Nigeria (SWOFON) conducted a snapshot survey among its members to find out which pesticides most women use. The survey covered 107 women farmers in four states.

SURVEY RESULTS

Eighty percent of the pesticide products used by surveyed farmers belong to the category of Highly Hazardous Pesticides (HHPs)³, and in many instances have lost approval in countries and regions with high saftey standards such as the European Union (EU).

Some products have already been banned in Nigeria too but are none-theless available in the market.





HHPs are of particular concern due to the severe adverse effects they can cause to human health and the environment. It is estimated that most pesticide poisoning cases are caused by a relatively small number of highly hazardous pesticides, particularly in low and middle-income countries⁴.

About 75% of the women farmers surveyed who use chemical pesticides have experienced some health challenges that they attributed to pesticide use.

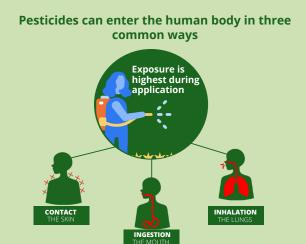
Symptoms like difficulty in breathing, dizziness, headaches, nausea, vomiting, eye problems, skin rashes, catarrh, diarrhoea, and respiratory problems were among the most common health effects reported.

The World Health Organization estimates that 385 million farmers fell victim to acute poisoning in 2019 most of them in Asia and Africa. The message of pesticide safety in such countries is a myth.

HOW DO PEOPLE GET EXPOSED TO PESTICIDES?

Pesticides can enter the human body in three common ways: through the skin (contact), the mouth (ingestion), and the lungs (inhalation). Exposure is highest during application.

Plants absorb pesticides through the leaves and roots. Pesticides that are taken up by plants can move (translocate) to other parts of the plant. Hence, pesticides are also absorbed inside fruits and vegetables. The most common way consumers are exposed is by eating food that has pesticide residues on and in them.





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active ingredients in pesticide brands used by the surveyed small-scale women farmers are **cancer causing**. The most common active ingredients found in pesticide products used by surveyed farmers across four states are:



Profenofos
Triazophos
Cypermethrin
Chlorpyrifos
Carbofuran
Butachlor
Atrazine

Dichlorvos Endosulfan Glyphosate Imidacloprid Mancozeb Paraquat

All of them are categorised as highly hazardous.



HOW DO FARMERS GET PESTICIDE PRODUCTS?



Community Markets & Stalls



Politicians on Election Campaigns & Philanthropists



Vendors in Farmer Anchor Borrower Programmes



and Dealers



Farmer Groups & Associations





Technical Support
Programmes by Research
Institutes and NGOs



Farm Extension Officers

SELECT MEDIA REPORTS ON PESTICIDE RELATED HEALTH INCIDENCES IN NIGERIA

2021: Food poisoning killed 24 family members in Danzanke village of Bargaja ward of Isa Local Government Area of Sokoto state.

2022: Family of 7 died in Danbaza village, Maradun LGA, Zamfara State.

2021: 10 children of a family died in Jangeme village in Gusau LGA from food poisoning.

2019: 14 persons died in Moda Village, Anka LGA

2019: 4 dead after eating guinea corn meal in Danko Chiefdom in Danko-Wasagu LGA of Kebbi State.

2017: 7 members of a family died in Anaba village, Magama LGA Niger State.

2021: 4 victims, all members of a family at Olori village of Kwara State, died after they consumed toxic food. **2021:** 3 persons died in Ilorin East LGA after pesticide related

poisoning in Kwara State.

2021: An outbreak of food poisoning in Ibadan Nigeria

claimed about 20 lives.

2016: 6 persons were reported dead in Okene LGA of Kogi

2014: 14 persons reported dead in Lagos state after eating beans.

2015: 23 Cases and 18 deaths in Ode Irele, Ondo state

2020: 7 persons died in Ogida quarter in Benin City, Edo state

2021: 5 dead due to pesticide related food poisoning in Ihiala LGA in Anambra State.

Soloto

Katina

Jigawa

Yobe

Borno

Kaduna

Kaduna

Bauch

Gombe

Adamawa

Abuja

Nasarawa

Plateau

Adamawa

Abuja

Nasarawa

Taraba

Berue

Cogun

2021: 26 persons survived food poisoning in Katsina. Victims comprised 20 children and 6 adults.

2011: 19 dead and over 100 people hospitalised after suspected pesticide food poisoning in Bui LGA Borno state.

2020: 19 victims of food poisoning cases reported with 2 deaths recorded in Mani LGA, Kano state.

2017: Pregnant women and 2 children died over pesticide poison in Kadarko village, in Kaura LGA.

2018: 120 students of government girl's secondary school hospitalized in Dome LGA, Gombe state.

2011: Family of 6 people reportedly died after eating suspected poisoned bean cake in Gombi LGA in Adamawa

2020: Pesticide caused death of nearly 300 villagers in Oyobi

2019: 4 persons died in Amaechare village in Afikpo North

LGA in Ebonyi state.

2008: 112 people hospitalized and <u>2</u> children reported dead in Bekwarra LGA in Cross River state.

2021: 5 dead due to pesticide related food poison in Isiala Mbano LGA in Imo state.

Source: Online media review. Links can be made available on request.

COMMON ACTIVE INGREDIENTS FOUND IN PRODUCTS USED BY SURVEYED FARMERS

Their Health Impacts and Regulatory Status in Nigeria and Other Countries

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Active Ingredients	Health Implications	International Regulatory Status	Regulatory Status in Nigeria
Atrazine	Atrazine may cause cancer. Atrazine can affect a person's health by altering the way that the reproductive system works. Maternal exposure to atrazine in drinking water has been associated with low fetal weight as well as heart, urinary, and limb defects in humans. The incidence of a birth defect known as gastroschisis appears to be higher in areas where surface water atrazine levels are elevated especially when conception occurs in the spring, the time when atrazine is commonly applied.	 Banned in EU countries since 2004. Has been banned in UK from use on non-cropland. Banned in some States in America – Hawaii, Puerto Rico, Guam, etc. Banned in China, and Canada. Highly restricted in USA. 	Neither banned nor restricted.
Butachlor	Butachlor is carcinogenic, mutagenic, and tumour-promoting. It can cause serious eye damage/eye irritation, skin sensitization, respiratory tract irritation. It can also lead to problems with the kidney, thyroid, liver, gall-bladder, pancreas, and urinary bladder.		Banned in Nigeria.
Carbofuran (Furadan)	Exposure to Carbofuran can cause weakness, sweating, nausea and vomiting, abdominal pain, and blurred vision. Higher levels can cause muscle-twitching, and loss of coordination, and may cause breathing to stop.		Neither banned nor highly restricted.
Chlorpyrifos	The health risks associated with exposure to Chlorpyrifos are well-documented. These include increased risk of neurodevelopmental conditions such as learning disabilities and attention deficit hyperactivity disorder (ADHD) following prenatal exposure, and links to cancer, endocrine disruption, and other health problems including dizziness and confusion. Exposure to small amounts of Chlorpyrifos can cause runny nose, tears, and increased saliva or drool. People may sweat, and develop headaches, nausea, and dizziness. More serious exposures can cause vomiting, abdominal muscle cramps, muscle twitching, tremors and weakness, and loss of coordination.	since 2019. Banned in New York, Hawaii, and California to protect farm workers and	FMARD issued a ban on its use on 7 March 2022 BUT NAFDAC is yet to add it to the list of banned pesticides.
Cypermethrin	Effects of cypermethrin range from mild local symptoms like paraesthesia following dermal contamination to neurological symptoms like seizures, fasciculations, tremors, coma and gastrointestinal symptoms like nausea, vomiting and gastrointestinal irritation.	India	Neither banned nor highly restrict- ed.

Active Ingredients	Health Implications	International Regulatory Status	Regulatory Status in Nigeria
Dichlorvos (2,2-dichlorovinyl dimethyl phos- phate, commonly abbreviated as a DDVP)	Even at low levels of exposure, Dichlorvos can lead to serious negative health effects such as cancer and neurodevelopmental harm. Dichlorvos attack important enzymes in the nervous system of insects and humans. People can get sick from breathing too much Dichlorvos pesticide vapour in the air. Early symptoms of overexposure in people include headache, lack of appetite, nausea, vomiting, and difficulty breathing.	 Banned in India. Banned in Canada. Banned in China. Banned in Argentina. Banned in the EU since 2006. Highly restricted in the USA. 	FMARD issued a ban on its use on 7 March 2022 BUT NAFDAC is yet to add it to the list of banned pesticides.
Endosulfan	Endosulfan is alleged to be responsible for many fatal pesticide poisoning. Endosulfan can act as an endocrine disruptor, causing reproductive and developmental damage in both animals and humans. Whether Endosulfan can cause cancer is debated. Endosulfan is acutely neurotoxic to humans. Symptoms of acute poisoning include hyperactivity, tremors, convulsions, lack of coordination, staggering, difficulty breathing, nausea and vomiting, diarrhea, and in severe cases, unconsciousness. Farm workers with chronic Endosulfan exposure are at risk of rashes and skin irritation. Some studies have documented that Endosulfan can also affect human development. Researchers studying children from many villages in India have linked Endosulfan exposure to delays in sexual maturity among boys. Endosulfan is not listed as a known, probable, or possible carcinogen by the USA Environmental Protection Agency (EPA), International Agency for Research on Cancer (IARC), or other agencies. No epidemiological studies link exposure to Endosulfan specifically to cancer in humans, but in vitro assays have shown that Endosulfan can promote the proliferation of human breast cancer cells.	 A global ban on the manufacture and use of Endosulfan was negotiated under the Stockholm Convention in April 2011. The ban has taken effect in mid-2012. Banned in more than 80 countries - including EU, Australia, New Zealand. Banned in USA, Brazil, and Canada. 	Banned in Nigeria
Glyphosate	Glyphosate is being banned because of its potential link to cancer in humans. Studies suggest that the chemical could be linked to certain types of cancer, particularly non-Hodgkin lymphoma. Symptoms of exposure to Glyphosate include irritation of the skin, gastrointestinal and respiratory tract, convulsions and coma. It may also cause enhanced breathing. People who breathed in spray mist from products containing glyphosate felt irritation in their nose and throat. Swallowing products with glyphosate can cause increased saliva, burns in the mouth and throat, nausea, vomiting, and diarrhoea. Fatalities have been reported in cases of intentional ingestion. Glyphosate is suspected of causing genetic damage. Glyphosate causes serious eye damage.	 Banned in Mexico. Banned in Canada. Banned in India 2018. Banned in France in 2017. Netherlands: Banned all non-commercial use of glyphosate. Qatar and five other countries in the Gulf Cooperation Council (GCC) have banned glyphosate. 	Neither banned nor highly restricted. However, reports from NAFDAC indicate that agrochemical companies have been given a grace period until December 2019 to withdraw all glyphosate formulations with tallow-amine from the Nigerian market

Active Ingredients	Health Implications	International Regulatory Status	Regulatory Status in Nigeria
Glyphosate cont'd		 Highly restricted in USA cities i.e. Alaska, Arizona, California, Colorado, Connecticut, Florida, Michigan, Nevada, etc. According to the European Commission, glyphosate is currently approved for use in the European Union until Dec. 15, 2022. Austria became the first EU country to ban glyphosate in July 2019. German cabinet approves legislation to ban glyphosate from 2024. 	
Imidacloprid	Imidacloprid is a neonicotinoid pesticide. Imidacloprid pesticides are toxic to humans causing only mild symptoms such as vomiting, abdominal pain, headache and diarrhoea in the majority of cases. Large ingestions may lead to sedation and respiratory arrest.	 Banned in Europe since May 2013. Banned in Canada. Banned in China. Banned in India. Banned in France. 	FMARD banned the use of all neonicotinoid pesticides on 7 March 2022 BUT NAFDAC is yet to add Imidacloprid to the list of banned pesticides.
Mancozeb (ethylene-bis-dith- iocarbamate), com- mercially known as diathan-M)	Mancozeb has been classified as a probable human carcinogen. Mancozeb has the potential to cause goitre, a condition in which the thyroid gland is enlarged and has produced birth defects and cancer. The European Chemicals Agency (ECHA) has classified Mancozeb as being toxic to reproduction, while the European Food Safety Authority (EFSA) has identified it as an endocrine disruptor.	 Declared obsolete in EU from January 2001. Withdrawn since July 4, 2021. Banned in the USA. Banned in Canada, UK and Vietnam. 	Neither banned nor highly restricted.
Paraquat	Paraquat is a herbicide that has been linked to Parkinson's. Paraquat causes damage to the body when it touches the lining of the mouth, stomach, or intestines. Paraquat may also damage the kidneys, liver, and oesophagus. Approximately 1,800 Paraquat lawsuits have been filed at the USA federal courts, mostly by farmers and agricultural workers against the chemical makers Syngenta and Chevron. Plaintiffs allege that the companies failed to warn them about the association between handling the weed killer and Parkinson's disease, a neurological condition that can take many years to develop.	 Banned in India, China, Canada and Brazil. Banned in 32 countries, including the European Union and UK. The US Environmental Protection Agency classifies Paraquat as "restricted use." 	Neither banned nor highly restricted. However, NAFDAC claims that by the end of December 2022, it will no longer process the renewal of registration of Paraquat product, and a total ban will come into effect on 1st January 1, 2024.

Active Ingredients	Health Implications	International Regulatory Status	Regulatory Status in Nigeria
Profenofos	Profenofos can overstimulate the nervous system causing nausea, dizziness, confusion, and at very high exposures (e.g., accidents or major spills), respiratory paralysis and death.	 Banned in Switzer-land Unapproved in the EU Banned in India. 	Neither banned nor highly restricted.
Triazophos	Acute exposure to Triazophos may produce the following signs and symptoms: sweating, blurred vision, headaches, dizziness, profound weakness, muscle spasms, seizures, coma, mental confusion and psychosis, excessive salivation, nausea, vomiting, anorexia, and diarrhoea. Respiratory signs include dyspnoea, pulmonary oedema, respiratory depression and respiratory paralysis. Chest pains are also reported.	 Banned in India. Banned in Canada. Banned in the EU. Highly restricted in the USA. Highly restricted in China. 	Neither banned nor highly restricted.

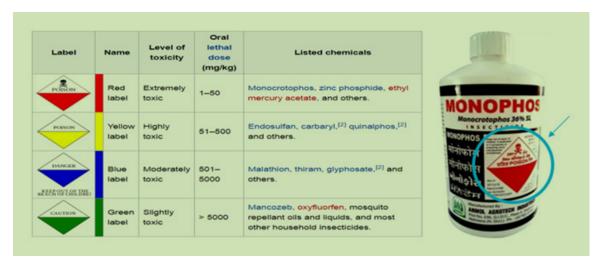
Source: Pesticide Registration Toolkit: https://www.fao.org/pesticide-registration-toolkit/information-sources/pesticide-properties/en/.
PubChem. An Open Chemistry Database at the National Institutes of Health (NIH). https://pubchem.ncbi.nlm.nih.gov/.
UN Stockholm Convention. The POPs. http://chm.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx.
NAFDAC (August 2022): LIST OF BANNED PESTICIDE IN NIGERIA. https://www.nafdac.gov.ng/wp-content/uploads/Files/Resources/Directorate_Resources/VMAP/LIST-OF-BANNED-PESTICIDES.pdf.

RECOMMENDATIONS

- 1. Farmers' associations all have the mission, obligation and responsibility to promote and protect the interest of their members. Hence, guaranteeing and protecting first the health of their members and their businesses should be central to the existence of all agricultural associations. On this bases:
 - a. The leadership of the various farmer associations in Nigeria must ensure that HHPs and banned toxic pesticides are not promoted or requested by their associations; else, the association should be ready to cover for the damages and harms that come from inputs they encouraged, or helped their members to access.
 - b. The leadership of the various farmer association in Nigeria should sensitize and educate their members on the associated dangers of the use of pesticides, especially those in the categories of extremely hazardous and highly hazardous pesticides. Such sensitization can be done in collaboration with National Orientation Agency (NOA), the Federal Competition and Consumer Protection Commission (FCCPC), the National Agency for Food and Drug Administration and Control (NAFDAC), the Nigerian Export Promotion Council (NEPC), states and local government (and their ministries of agriculture, environment and health), traditional, religious and community leaders, agric research councils and institutes, NGOs and consumer protection organisations etc.
 - c. The leadership of the various farmer associations should as a matter of urgency, inform and educate their members via circulars, community radio and other grass root mediums, on ways to check pesticide active ingredients on product brands and how to verify if they are HHPs or banned.
 - d. The various farmer association in Nigeria should rise to the task of developing initiatives that guide its members towards the overall reduction of pesticide use through integrated pest management, towards safer pesticide application methods, and towards nature-based alternatives not relying on chemical pesticides at all. Such initiatives would

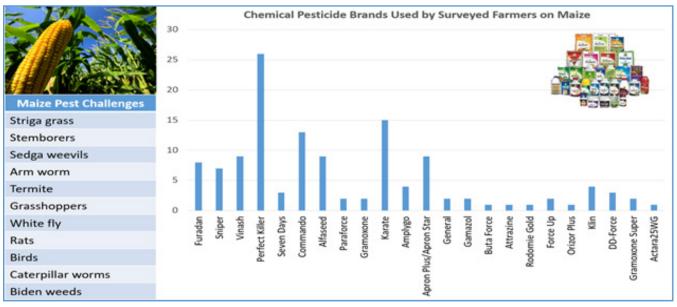
not only ensure safer food for domestic consumption but also reposition Nigeria in the global export market.

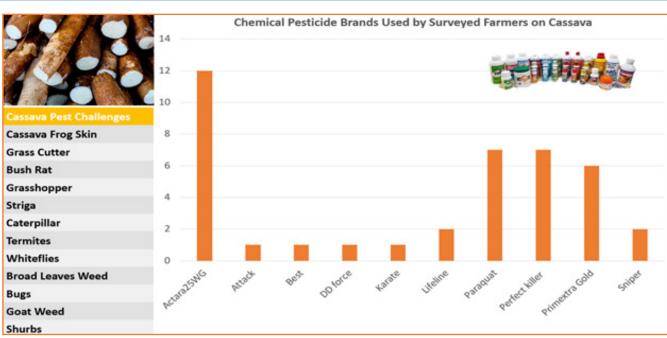
- e. The leadership of the various farmer associations in Nigeria should encourage and demand from the Ministries of Agriculture, CBN-NIRSAL's Anchor Farmer Programmes, Philanthropist, Politicians, Development Partners and the various agrochemical companies to produce and supply more organic inputs like Biopesticides and organic fertilisers. They should advocate for incentives and subsidy shifts towards nature-based farm inputs that protect humans and the environment.
- f. Farmers and farm workers should be empowered to seek justice for exposure to HHPs from their employers and pesticide promoters, who fail to educate them on the associated risks and/or fail to make adequate provisions to guarantee their safety at work (farms) and home.
- g. In the same vain, communities exposed to pesticide pollution should consider litigation as a way to demand justice for environmental and human health damage, and as a pathway to claim compensation from agrochemical companies, the government and its agencies, pesticide traders, and commercial farms that fail to provide remediation, safety, licencing checks and continuous monitoring of pesticide application and pollution.
- 2. Aside from the need for a national pesticide control legislation with a focus on ensuring the health and safety of the Nigerian people and their environment, the National Assembly needs to amend the law that created NAFDAC. An amendment of the NAFDAC act should give NAFDAC the power to immediately (as a matter of national health emergency) ban, suspend, revoke, and recall any registered pesticide product with an active ingredient proven to be or categorized as extremely and highly hazardous to human lives, especially those banned internationally, or/and where alternatives exist. NAFDAC should also reflect this in Section 12(2b) of NAFDAC's Pesticide Registration Registrations 2019.
- 3. There is a need for NAFDAC to introduce toxicity colour codes on pesticide products (aside from the usual labels) in Section 9 and 10 of the NAFDAC Pesticide Registration Regulation of 2019. This will inform the mass of consumers of the various toxicity level based on the categories of active ingredients. Such colour coding will determine the accessibility and necessary handling of the various categories of pesticide products based on their toxicity. For instance, toxicity labels namely: red label (extremely toxic/hazardous), yellow label (highly toxic/hazardous), blue label (moderately toxic/hazardous), and green label (slightly toxic/hazardous), are mandatory labels employed on pesticide containers in India identifying the level of toxicity of the contained pesticide. The scheme follows the Insecticides Act of 1968 and the Insecticides Rules of 1971⁵.

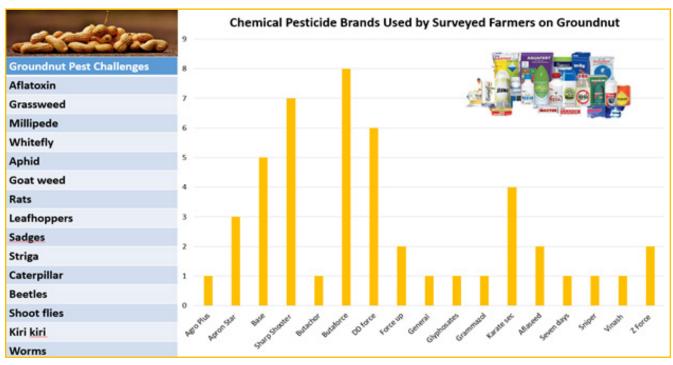


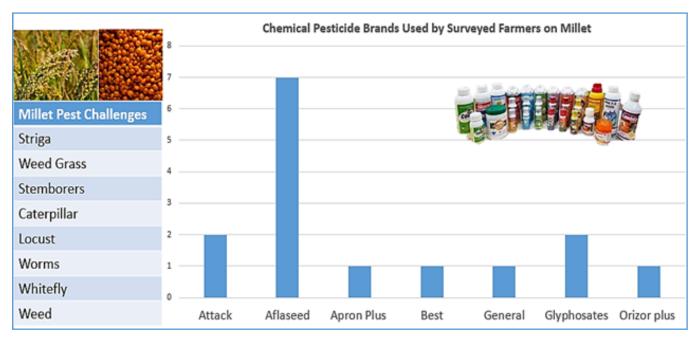
- 4. NAFDAC needs to update its list of banned pesticides and make public the list of registered pesticides for informed decisions by farmers and consumers. NAFDAC's current online database on registered products is disfunctional, hard to navigate, has restricted filter features, and does not allow detailed access to the spreadsheet.
- 5. NAFDAC needs to put regulations in place to ensure that HHPs are phased out, and that highly toxic pesticides are restricted, i.e. stoppage of over-the-counter sales.
- 6. In addition, NAFDAC needs to put in place stricter sanctions/penalties for persons and corporate bodies who contravene the Pesticide Registration Regulations 2019. The existing penalties are not enough to ensure compliance; or effect compensation for losses or environmental remediation. The current penalties seem too mild and negligible, compared to the magnitude of hazards caused by toxic pesticide culprits.
- 7. The Central Bank of Nigeria (CBN), Bank of Agriculture (BOA), Bank of Industry (BOI) and the Federal Ministry of Agriculture and Rural Development (FMARD) should check and mandate agrochemical dealers in their anchor-borrower programmes to remove all HHPs from their programmes and encourage them to supply more organic inputs such as biopesticides, organic fertilizers, etc.
- 8. The FMARD government needs to develop sustainable food strategies that reduce the use of pesticides by 50% by 2030 and provide strong support to farmers in their transition towards sustainable agriculture, i.e. agroecology.
- 9. FMARD and state ministries of agriculture should increase budget allocation for organic inputs, biopesticides, and agroecology.

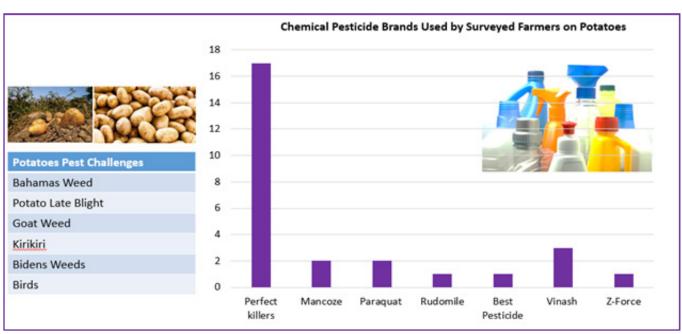
APPENDIX

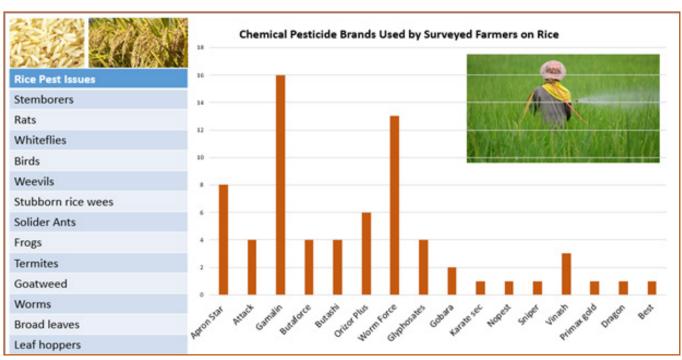


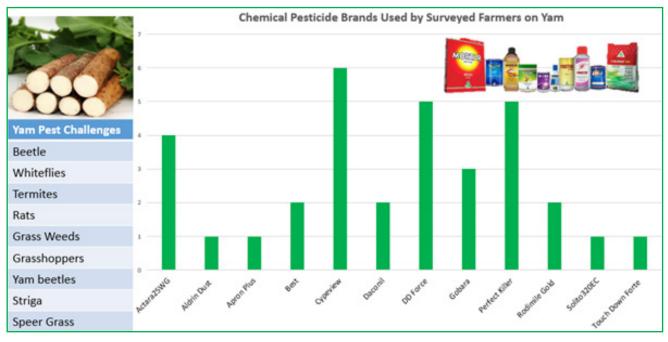


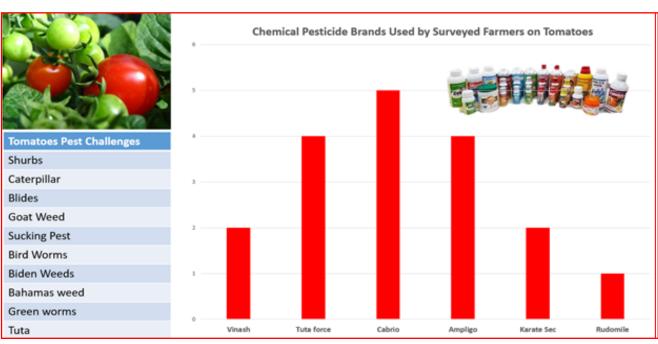


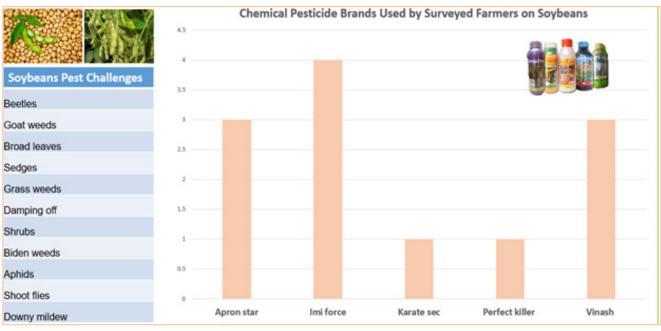












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