Islamic Organization for Food Security
l'Organisation Islamique pour la Sécurité Alimentaire
المنظمة الإسلامية للأمن الغذائي

JUNE 2021 – ISSUE №4

FOOD SECURITY HUB

► UAE and IOFS sign a Memorandum of Understanding in Kazakhstan

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IMAGE SOURCE: FREEPIK

Timeline of IOFS events

APRIL - JUNE 2021

APRIL 5	First Meeting of Financial Control Committee
APRIL 7-8	IOFS visited SMIIC HQ in Turkey
MAY 30	IOFS visited NASEC research centres in Almaty
MAY 28	Memorandum signed with NASEC
MAY 27	Memorandum signed with ICBA
JUNE 4	Memorandum signed with COMSTECH
JUNE 7	Seventh Executive Board Meeting
JUNE 11	UAE Minister of State for Food and Water Security visited IOFS headquarters
JUNE 15-16	Director-General of IOFS conducts a working trip to Kygyzstan
JUNE 28	Memorandum signed with ICIEC

Implementation of IOFS programs

APRIL - JUNE 2021

APRIL 6	**IOFS PROGRAM «OIC FOOD SECURITY RESERVES»** OIC International Online Conference on Food Security Reserves
APRIL 7	**IOFS PROGRAM «OIC PLAN OF ACTION FOR DEVELOPMENT OF WHEAT»** First meeting of Centre of Excellence for Wheat for Asia Group I
APRIL 24	**IOFS PROGRAM «NATIONAL FOOD SECTORS DEVELOPMENT IN COOPERATION WITH STATE INVESTMENT AGENCIES»** ‘Projects in Food Industry: Perspectives and Problems of Attracting Investments to OIC Countries’ experts meeting
MAY 25	**IOFS PROGRAM «DEVELOPMENT OF NATIONAL GENE BANKS»** Conservation and Reproduction of Genetic Resources for Sustainable Agriculture and Ensuring Food Security at the OIC Scale
JUNE 22	**IOFS PROGRAM «FOOD SAFETY AND HALAL FOOD DEVELOPMENT»** From Gene to Fork experts meeting
JUNE 23	**IOFS PROGRAM «OIC PLAN OF ACTION FOR DEVELOPMENT OF RICE»** First meeting of Centre of Excellence for Rice for Asia Group I
JUNE 25	**IOFS PROGRAM «OIC PLAN OF ACTION FOR DEVELOPMENT OF WHEAT»** Second meeting of Centre of Excellence for Wheat for Asia Group II

OIC International Online Conference on Food Security Reserves

6 April 2021

The aim of the online event was to present the pre-feasibility study on OIC Food Security Reserves prepared by the indicated consultancy, and to discuss the concepts and proposals for the Food Security Reserves scheme. The establishment of Food Security Reserves could consolidate efforts of the member states to achieve food security and eliminate hunger across the Muslim world. After the adoption of the Resolution on the Establishment of the OIC Food Security Reserves at the Third General Assembly, the IOFS Secretariat was tasked to engage experts in enhancement of the preliminary studies and gather the member states to approve the further development of the program. 83 participants attended the Conference, including the representatives of

government agencies, research institutes, diplomatic corps of 34 OIC Member countries, experts of the consultancy consortium and OIC institutions, as well as other international organizations.

UAE Minister of State for Food and Water Security visited the IOFS headquarters in Nur-Sultan

11 June 2021

On 11th June, the Director-General of IOFS H.E. Yerlan A. Baidaulet met with H.E. Mariam bint Mohammed Almheiri, Minister of State for Food and Water Security during her working trip to Nur-Sultan, Kazakhstan signed a Memorandum of Understanding. The MOU aims to strengthen bilateral relations between the parties and expand cooperation in food security by supporting agricultural enterprises in the OIC countries and implementing IOFS strategic programs. The document will be valid for two years from June 2021 to July 2023 and might be renewed with the consent of the parties.

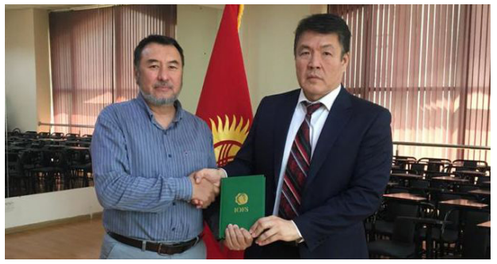
Director-General of IOFS conducted a working trip to Kyrgyzstan

15-16 June 2021

The Director-General of IOFS H.E. Yerlan Baidaulet had several working meetings in Kyrgyzstan on June 15-16. The first day saw him meet with Mr. Marat Sharshekeyev, the Chairman of the Presidium of Chamber of Industry and Commerce of Kyrgyzstan, Kyrgyz politician Myktybek Arstanbek, the head of Halal Industry Development Committee and the Vice Minister of Agriculture, Water Resources and Regional Development, H. E. Azamat Mukashev.

The same day Mr. Yerlan Baidaulet was acquainted with Mrs Gulnaz Kaseeva, the president of “AgroLead” holding, a leading agricultural consulting company and Mr Aibek Artykbayev, Vice-Minister of Foreign Affairs of Kyrgyz Republic, who oversees cooperation with international organizations, the OIC Secretariat and the accession of Kyrgyz Republic to IOFS.

On the sidelines of the working visit, Mr. Baidaulet met H.E. Rapil Zhoshybayev, the Ambassador of Kazakhstan to Kyrgyzstan to discuss areas of cooperation between IOFS and the Embassy.



Director-General of IOFS H.E. Yerlan A. Baidaulet was awarded the title of Honorary Professor of the Kazakh National Agrarian Research University

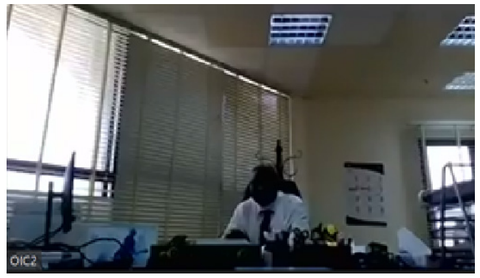
21June 2021

On June 21, Director-General of IOFS H.E. Yerlan A. Baidaulet was awarded the title of Honorary Professor of the Kazakh National Agrarian Research University. The outstanding ceremony took place at the University main offices during the working visit of IOFS Director General to key entities of the JSC NASEC located in Almaty. First Deputy Chairman of the Board Mr. Kanat Tireuov upon the University Senate decision presented the Director-General of IOFS the diploma, medal and mantle of the Honorary Professorship and noted the active and fruitful cooperation between IOFS and the University.

Meeting with OIC Assistant Secretary-General for Economic Affairs H.E. Dr. Ahmad Kawesa Sengendo

17 June 2021

In the approach of continuous communication with OIC Secretariat Director-General of IOFS H.E. Mr. Yerlan Baidaulet had a virtual meeting with H.E. Dr. Ahmad Kawesa Sengendo, OIC Assistant Secretary-General for Economic Affairs On June 17. Mr. Yerlan Baidaulet thanked the OIC Secretariat for the unceasing support provided to IOFS as an OIC specialized institution and presented IOFS strategic framework of programmes, the IOFS Vision 2031 and overview of current activities implemented by the IOFS Secretariat. Dr. Ahmad K. Sengendo assured providing permanent support from OIC Secretariat to the IOFS efforts and emphasized the importance of the Institution's role in addressing critical challenges of hunger and malnutrition faced by OIC countries.



DÉVELOPPEMENT DES PRODUITS HALAL AU KAZAKHSTAN

AUTHOR:
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ASSISTANT ANALYST

Le mot «Halal» fait référence à la Charia, qui définit l'admissibilité des produits et des services à la consommation et au commerce. Il comprend les vêtements, les loisirs, la médecine et des articles médiatiques précis, en plus des aliments et des boissons. En raison de la croissance de la population musulmane, l'augmentation des revenus et une meilleure connaissance des principes de leur religion, l'industrie halal est devenue un segment de marché important. Tant les musulmans que les non-musulmans considèrent la certification Halal comme un sceau d'approbation garantissant la qualité et la protection des aliments. L'industrie halal mondiale, en tant que marché le plus prometteur, a attiré un plus grand univers d'entreprises que tout autre domaine de l'économie islamique mondiale.

Selon le Rapport sur l'état de l'économie Islamique mondiale 2018/19, les consommateurs musulmans ont dépensé 2,1 milliards de dollars américains en produits alimentaires, boissons et produits de mode de vie en 2017, et ce chiffre devrait atteindre 3 milliards de dollars américains d'ici 2023. En 2017, les musulmans ont dépensé 1,3 milliards de dollars en nourriture et en boissons, suivis de la mode modeste (270 milliards de dollars), des médias et des loisirs (209 milliards de dollars), des voyages (177 milliards de dollars), des produits pharmaceutiques (87 milliards de dollars) et des cosmétiques (61 milliards de dollars).

Les activités de l'OISA visent à encourager les pays membres à améliorer l'infrastructure alimentaire Halal, les marchés et le commerce. Le mandat de l'OISA a été étendu pour soutenir la coopération régionale de l'industrie alimentaire Halal, en particulier dans les pays d'Asie centrale.

Les aliments Halal sont très prometteurs en Asie centrale. Les pays d'Asie centrale, y compris le Kazakhstan, font un travail fragmentaire pour développer l'industrie Halal dans leurs pays respectifs.

Le Kazakhstan a montré un intérêt croissant pour le secteur Halal national et cherche à le développer pour répondre au marché mondial et stimuler son économie nationale, notamment dans les cosmétiques Halal et les viandes Halal, sur la période 2017-2019. Almaty, Nur-Sultan, Shymkent et Uralsk sont parmi les principales villes du Kazakhstan où des cosmétiques Halal sont désormais disponibles. Les produits de viande Halal du Kazakhstan ont également trouvé leur place sur les marchés des Émirats Arabes Unis et du Moyen-Orient, suscitant des demandes pour plus de viandes Halal approuvées du Kazakhstan sur ces marchés.

La viande Halal du Kazakhstan est déjà entrée sur les marchés du Moyen-Orient, ce qui a incité à élargir la disponibilité des viandes Halal approuvées par le Kazakhstan. Le Kazakhstan a certainement la possibilité de participer à ce secteur mondial en pleine expansion. Au cours des dernières années, le nombre d'établissements alimentaires Halal a augmenté parallèlement au nombre d'entreprises Halal opérant au Kazakhstan. Il n'y avait qu'environ 8 spécialistes Halal dans le pays en 2002. Le Kazakhstan compte aujourd'hui plus de 600 entreprises Halal et 130 abattoirs dédiés au service de la population musulmane du pays. L'alimentation Halal est devenue une force motrice sur le marché des aliments et des boissons du Kazakhstan, en particulier dans le secteur de la viande, avec environ 30% de toutes les viandes vendues dans le pays classées comme Halal.

Il existe sans aucun doute des opportunités pour le Kazakhstan de rejoindre un marché croissant qui répond à une demande qui va au-delà de la population musulmane mondiale existante (environ 1,8 milliard et en croissance). Selon le Rapport sur l'état de l'économie islamique mondiale 2018/2019 de Thomson Reuters, le sous-secteur des aliments et des boissons Halal valait à lui seul 1,303 milliard de dollars américains en 2017. Le Kazakhstan est bien placé pour répondre aux besoins des quelque 100 millions de musulmans de la CEI à court terme.

Actuellement, les aliments Halal représentent environ 3 milliards de dollars américains sur les 22 milliards de dollars américains dépensés chaque année en nourriture et en boissons au Kazakhstan. Ces dernières années, le nombre d'établissements alimentaires Halal a augmenté parallèlement au nombre d'entreprises Halal. Le Kazakhstan ne comptait que 8 entreprises Halal en 2002 ; aujourd'hui, le pays compte plus de 600 entreprises Halal et 130 abattoirs dédiés à la communauté musulmane. L'industrie de la viande a été un élément moteur de l'expansion du marché Halal au Kazakhstan, représentant environ 30 % du marché total. Le Kazakhstan a coordonné avec succès l'événement World Food Kazakhstan, qui a inclus le secteur Halal comme priorité pour le gouvernement. Les produits clés de cet événement étaient principalement des aliments et des boissons.

Compte tenu de la réponse positive, le secteur Halal reste un domaine prometteur pour la diversification économique du Kazakhstan. Compte tenu de la position stratégique du Kazakhstan et de sa proximité avec d'autres pays à majorité musulmane, la croissance du secteur Halal profitera à la balance commerciale du pays.

ENJEUX ET DÉFIS DU MARCHÉ HALAL DU KAZAKHSTAN

Le marché Halal et la finance Islamique ne sont pas intégrés.

Un écosystème Halal intégré, qui inclut la finance Islamique dans la chaîne économique, de la création à la livraison des produits Halal aux clients, est une condition préalable à un marché Halal véritablement dynamique. Le marché Halal du Kazakhstan doit également mettre en œuvre de bonnes pratiques de gestion, des processus appropriés et des procédures opérationnelles standard bien établies. Le Kazakhstan, quant à lui, manque actuellement des ressources nécessaires pour construire et relier les acteurs Halal établis à ces soft-infrastructures, ainsi que la politique, la supervision et la réglementation pour les diriger.

Le manque d'infrastructures de soutien freine la croissance des acteurs Halal au Kazakhstan, en particulier lorsque les entreprises Halal veulent s'assurer que l'ensemble de leur chaîne de valeur et de leurs activités sont conformes à la Charia. Comme il n'existe pas de lignes directrices intégrées, il existe un risque de confusion quant au caractère Halal du marché, qui est exacerbé par les cas de contamination entre les produits Halal et non Halal. Pour que le secteur Halal puisse se développer et contribuer de manière significative à l'économie nationale, un cadre approprié est nécessaire, non seulement pour les acteurs du marché, mais aussi pour les décideurs politiques.

Un système de gestion Halal décousu

Au Kazakhstan, des institutions de certification privées telles que l'Administration spirituelle des musulmans du Kazakhstan («SAMK»), le Centre de qualité Halal («HQC») et l'Association de l'industrie Halal du Kazakhstan («AHIK») assurent la certification et la supervision Halal. Le SAMK (également connu sous le nom de «Muftiyat») est une organisation totalement autonome qui n'est ni affiliée ni soutenue par le gouvernement du Kazakhstan. Par conséquent, le processus de certification Halal au Kazakhstan dépend uniquement des exigences de ces trois organismes, et le financement provient principalement des paiements perçus auprès des entreprises souhaitant obtenir la certification Halal.

La certification et le système de gestion Halal sont sous-estimés.

En général, le Halal est surtout associé à la nourriture et aux boissons dans la société kazakhe. Il n'existe qu'une connaissance de base du secteur Halal, et il n'y a aucune tentative systématique de sensibilisation et d'alphabétisation sur un plus large éventail de produits Halal et sur l'ensemble de l'industrie.

Dans ce contexte, les entités Halal se sont efforcées d'accroître les niveaux de sensibilisation, mais avec un succès limité. La certification des produits autres que les produits alimentaires et les boissons devrait être soutenue en partenariat avec les parties prenantes concernées, car le Kazakhstan a le potentiel d'étendre son industrie Halal des voyages ou du tourisme, des produits médicaux et des cosmétiques. Diverses activités à petite échelle doivent être encouragées afin de leur donner l'espace nécessaire pour atteindre la masse critique requise pour réaliser la vision nationale du Kazakhstan en matière de diversification industrielle et d'établissement de nouveaux domaines de croissance économique.

Disponibilité d'une garantie Halal au grand public

L'accès du public à la certification Halal est essentiel pour assurer le confort et la confiance du public dans l'achat de biens et l'utilisation de services conformes aux normes de la Charia. Cependant, il y a actuellement peu de bases de données publiques, que ce soit par le biais de plateformes ou d'applications mobiles en ligne ou hors ligne, que le grand public ou les visiteurs peuvent utiliser pour en savoir plus sur les opérateurs Halal. En comparaison avec d'autres marchés plus développés, le Kazakhstan a un écart important dans la croissance de l'industrie Halal.

Face à la concurrence mondiale, le secteur Halal doit utiliser les technologies les plus pointues afin de développer et de maintenir sa compétitivité. Or, au Kazakhstan, il n'existe actuellement aucun plan numérique visant à promouvoir l'accès du public aux produits et services Halal. L'accès à l'assurance Halal aurait un bon impact sur l'industrie Halal nationale et renforcerait la chaîne de valeur Halal, les moyennes et micro-entreprises, et l'échelle de production avec plus de coordination entre le gouvernement et l'industrie.

Manque de sensibilisation et de compréhension du développement

La conscience religieuse est importante pour la compréhension et la demande de produits Halal, et les parties prenantes au Kazakhstan estiment que la conscience religieuse est faible. Il y a peu de couverture médiatique, de formation ou d'éducation concernant les caractéristiques ou les besoins de l'industrie Halal. En outre, pour que le Kazakhstan devienne un grand producteur de produits halal, il est nécessaire d'avoir une bonne connaissance des tendances Halal dans la région ainsi que dans d'autres lieux d'exportation possibles.

RECOMMANDATIONS

Créer un cadre pour l'industrie Halal

Malgré le fait que le Kazakhstan soit un pays à majorité musulmane, l'importance des produits Halal n'est pas suffisamment connue et, par conséquent, le marché local des produits Halal est minime. Le Halal est surtout appliqué aux viandes, aux aliments et aux boissons, et aucune stratégie ou politique n'est en place pour favoriser la croissance du marché.

Face aux incertitudes économiques mondiales et à la nécessité de diversifier l'économie nationale, le gouvernement pourrait rédiger un document stratégique visant à développer l'activité Halal et à évaluer son potentiel économique national et régional. Un complexe industriel Halal national est susceptible de promouvoir les exportations, l'économie réelle dans les villages et les zones périphériques, la demande de finance islamique et d'établir des liens avec les nations voisines (qui ont elles-mêmes une importante population à majorité musulmane).

Adoption d'un mécanisme coopératif d'assurance Halal pour les articles autres que les aliments et les boissons

Étant donné que le marché Halal actuel est principalement axé sur le secteur de

l'alimentation et des boissons, le Kazakhstan pourrait chercher à tirer parti de la croissance de ce secteur pour le relier à d'autres secteurs de croissance potentiels du secteur Halal, comme le tourisme Halal et les voyages. Le nombre croissant de restaurants Halal au Kazakhstan peut être incorporé dans un plan de développement du tourisme Halal et intégré dans une stratégie coopérative plus large . La procédure de certification Halal pour les produits autres que les aliments et les boissons pourraient alors être renforcés par un cadre juridique approprié.

Établir un cadre juridique pour l'industrie Halal en utilisant la technologie financière comme plateforme de distribution

Dans tout type d'entreprise, la technologie financière est devenue un outil et une politique stratégique pour accroître l'efficacité. Lorsque l'infrastructure nécessaire est en place, les personnes vivant dans les endroits éloignés peuvent simplement adopter la technologie financière. Les composantes du commerce électronique pour les produits Halal, les plateformes de négociation en ligne, les applications mobiles et les interactions directes entre pairs pour les articles Halal devraient toutes faire partie du développement du secteur halal au Kazakhstan. Ceci est rendu possible et soutenu par le cadre réglementaire approprié, qui permet à l'entreprise Halal d'utiliser la technologie FinTech et le commerce électronique pour faciliter la distribution.

Créer une chaîne d'approvisionnement Halal avec l'aide d'un centre national Halal

L'ensemble des opérations qui soutiennent le fonctionnement d'une entreprise Halal, y compris le marketing, la production, le financement, la distribution ou le transport, et le stockage, est appelé la chaîne de valeur Halal. Les PME déploient fréquemment une chaîne d'approvisionnement Halal, qui comprend une activité agricole intégrée, l'alimentation et la mode, et le tourisme Halal.

La construction d'une chaîne d'approvisionnement Halal est une condition préalable à la croissance de l'activité Halal, et cela peut être accompli en établissant un centre national Halal. Ce centre national Halal pourrait également ouvrir la voie à une collaboration régionale avec des entreprises Halal dans d'autres pays de la CEI.

Le centre national du Halal peut servir de point de convergence pour les projets d'entreprises Halal, leur permettant de rechercher des financements à des taux spécialisés. Les entreprises peuvent négocier en groupe jusqu'à ce qu'elles atteignent une masse critique et, dans l'intervalle, le gouvernement peut intervenir en accordant des subventions ou en créant un fonds de développement du Halal pour lancer et poursuivre le processus de croissance de l'industrie Halal.

Promouvoir l'éducation et la recherche Halal dans les universités

L'éducation est un élément essentiel du développement des compétences et des capacités du secteur Halal, en particulier chez les jeunes générations, afin d'établir le cadre d'une meilleure sensibilisation, compréhension et connaissance Halal au niveau universitaire.

Éducation et formation aux technologies de certification Halal

La certification est un type de reconnaissance qui peut être obtenu dans un domaine particulier. Cependant, en raison d'un manque d'alphabétisation et de soutien officiel, par exemple sous la forme d'une allocation de fonds, le commerce Halal et la technologie moderne au Kazakhstan ne sont toujours pas fusionnés. La technologie pourrait réduire les coûts de fabrication et améliorer la disponibilité d'articles Halal à bas prix sur le marché.

La technologie de certification Halal devrait inclure toutes les formes d'articles Halal pour lesquels l'Halal est important, et une formation approfondie pour l'obtention de cette certification devrait être mise à disposition.

How Data Driven Agriculture Can Help Attain Food Security

AUTHOR:

MR. ABU HUSAIN MOHAMMAD KAMRUZZAMAN
IOFS Program Manager

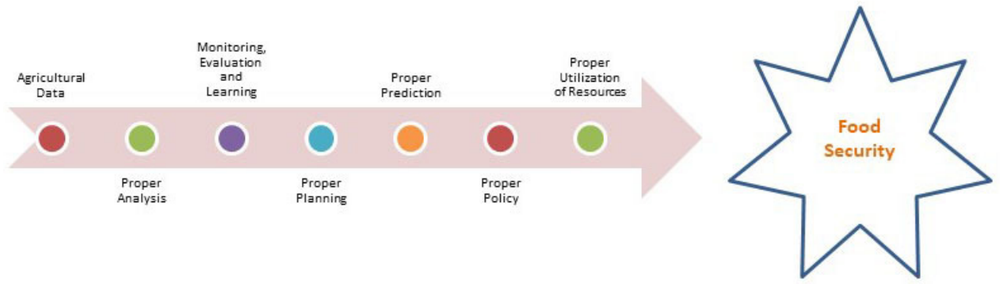
Although it is widely recognized that sound decisions are based on good information and data, in many countries, particularly low and lower middle-income countries of OIC, the availability of timely and reliable rural, agricultural and food security statistics is largely lacking. Despite all efforts, most of these countries still do not conduct regular household and farm surveys, do not meet the minimum data requirements, lack sustainable data systems, and have insufficient capacity to analyse and use the data for decision making.

Addressing the gap in quality data is also essential to monitor progress and understand where the member states of OIC stands in achieving its shared goals - like the SDGs. As the success of the SDGs rests largely upon strengthening data collection and statistical capacity-development at national level, including capacity building that strengthens coordination among national statistical offices, it is high time to take the initiative to ensure robust statistical system of OIC member states to measure progress in achieving the 2030 Agenda.

Recently, IOFS is going to take several initiatives to strengthen national agricultural database systems of its member states through technical assistance, methodological innovation and research, and by supporting national capacity to collect, process, analyse, and utilize agricultural data, it can contribute significantly making policies towards a better food self-sufficient state. Yet, beyond these first steps, more needs to be done at the regional level to support the process of laying the groundwork for informed decision making, setting standards for improved data-driven policies around food security and nutrition, strengthening effective monitoring, reviewing and following- up to attain the SDG goal 2.

The Pathway from Agricultural Data to Food Security

Source: Authors simulation

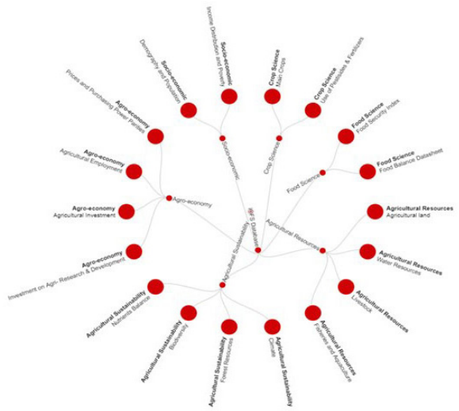


Of course, data sources are wide and varied and should be collected and utilized with an eye towards transparency, openness, and consistent with legal standards and relevant human rights principles.

Investing in data-driven agriculture is expected to increase agricultural production and productivity, help adapt to or mitigate the effects of climate change, bring about more economic and efficient use of natural resources, reduce risk and improve resilience in farming, and make agri-food market chains much more efficient. Ultimately, it will contribute to food and nutrition security.

Main Dimensions of IOFS Database:

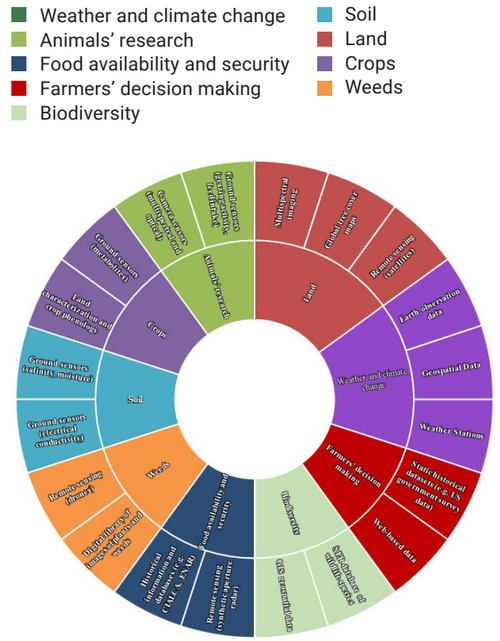
Source: Authors simulation



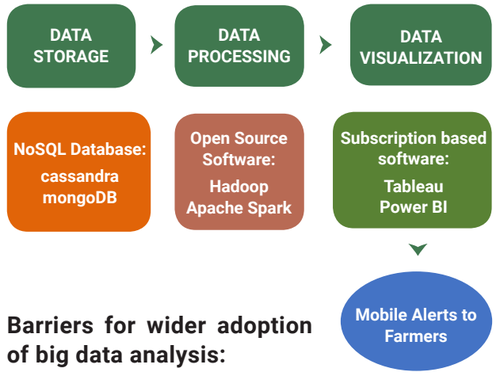
To tackle the increasing challenges of agricultural production, the complex agricultural ecosystems need to be better understood. This can happen by means of modern digital technologies that monitor continuously the physical environment, producing large quantities of data in an unprecedented pace. The collection of big data in agriculture is known as “crowed sourced”. Agricultural big data can be used for analyzing seed characteristics, weather pattern, soil properties like pH or nutrient content, proper management of crops, livestock and fisheries, marketing and trade management and so on. It can be potentially used by researchers for research purposes, government officials in order for short and long-term decision-making.

Big Data Dimensions and Sources

Source: Authors simulation



Techniques and Tools for Big Data Application:



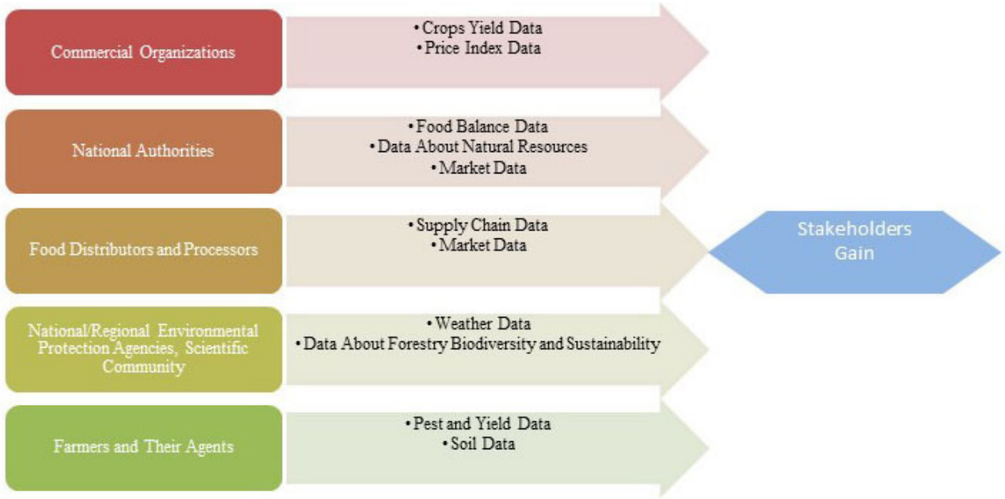
Barriers for wider adoption of big data analysis:

There is generally a lack of structure and governance related to agricultural big data alongside human resources and expertise. In addition to this, proper infrastructures are needed for effiscient data storage, management and processing of multi-modal and high-dimensional datasets, including provisioning for real-time processing in many critical geospatial applications.

Moreover, technical challenges of remote sensing systems for farm management still exist, such as the collection and delivery of images in a timely manner, sampling errors and the lack of high spatial resolution data, image interpretation and data extraction issues, the influence of weather conditions etc. Moreover, technical challenges of remote sensing systems for farm management still exist, such as the collection and delivery of images in a timely manner, sampling errors and the lack of high spatial resolution data, image interpretation and data extraction issues, the influence of weather conditions etc.

Different types of stakeholders those who can be benefitted from big data are classified as follows:

Different types of stakeholders who can be benefit from big data:



Aside from all other substantial benefits, Big Data can help bring political and social stability in a country. The use of Big Data to inform early warning mechanisms like an online food-price tracking mechanism can help taking precautionary measures in order to avoid food price hike. The overriding point is that the rising price of food is often the catalyst for turning a welter of other grievances into violent conflict. Therefore, the government authorities can prevent public discontent about unexpected inflation due to temporal production shortage.

Although most of the lower middle income and developing countries of OIC does not have the infrastructure to collect big data specifically from the small-holder farmers of these countries, still the national authorities can utilize open sources of big data though which they can be benefitted from.

Sources:

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Horticultural Crop Production in Nigeria: The Challenges and the Way Forward

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Country Background and Physical Geography of Nigeria

Nigeria is the most populous country in Africa and the seventh most populous in the world, with an estimated 200 million people currently. The population continues to grow at an annual rate of 3.2% as a result of a high fertility rate (5.38 children per woman). The pressure on land and other resources in rural areas is contributing to rapid urban migration, and Nigeria has one of the highest urban growth rates in the world at 4.1%. As at 2015, Nigeria was the world's 20th largest economy, worth more than $550 billion and $1 trillion in terms of nominal GDP and purchasing power parity (PPP) respectively. Nigeria overtook South Africa to become Africa's largest economy in 2014. Nigeria is a member of the Economic Community of West African States (ECOWAS), the African Union (AU), United Nations (UN), Islamic Organization for Food Security (IOFS), Islamic Development Bank (IsDB), Organization of Islamic Cooperation (OIC) and Organization of the Petroleum Exporting Countries (OPEC) among other international organizations.

The Significance of Horticultural Crops in Nigeria

Given the positive influence improved value chains in horticulture have both for the rural population, often working in agriculture, as well as the growing urban class that needs access to horticultural produce. Horticultural crops are nutritionally important to man as they provide the much needed vitamins, minerals and fibre. They are important protective food and highly beneficial for the maintenance of health and prevention of diseases.

Way Forward to Productivity Enhancement

SOIL FERTILITY: Soil fertility requires attention in view of the need to maintain adequate levels of macro and micro soil nutrients under intensive production systems that remove nutrients from horticulture areas. Soil erosion in South-eastern Nigeria and desertification in the North due to deforestation wash away topsoil with the nutrient layers and pose a threat to soil fertility. Climate change, with temperature increase, speeds up the breakdown of soil organic matter which is essential for water retention and root development especially the tree crops.

Access to Information and Knowledge: In order to increase horticultural productivity and improve its business both nationally and internationally, the right information is required at the right time for strategic planning and making sound and appropriate decision. This is relevant to all stakeholders in the sector, including farmers, input suppliers, processors, traders, policy makers, development partners, and researchers. Appropriate information can sharpen opportunities, clarify market access, and enable participants to make choices regarding how to deploy scarce resources e.g. extension support services.

ACCESS TO INPUTS: Access to inputs such as seeds/seedlings, fertilizer remains a challenge for achieving optimal productivity of horticultural outcomes

Way Forward to Production Management

WATER/IRRIGATION SYSTEMS: Water is a relative scarce commodity for production and hence requires attention. Increased productivity of horticultural crops will require a prudent use of additional water through irrigation. Optimizing the use of available water resources is important and can be achieved by the choice of horticultural crops with limited water requirement, use of water conservation techniques as well as efficient irrigation methods. Intensification of horticultural crop production, combined with effects of climate change such as desertification and increased evaporation, result in surface water reduction. At present, Nigeria uses a system built around River Basin Authorities to allocate water in specified tracts of the country.

STORAGE: Given the current postharvest loss rates of up to 60% for most perishable horticultural crops, Nigeria needs to rapidly introduce new storage solutions across its agricultural system especially the horticultural sector. At the national level, Nigeria has recently invested ₦66 billion ($ 173,684,210) to establish 15 cold rooms, 33 silo complexes, 25 grain aggregation centres, and 9 units of Blumberg warehouses, which have now been privatized by way of concession. The project, which is at varying degrees of completion or deliverables, aims to keep 5% of national output in storage. In addition, if successful, the project will help sustain national food security in terms of food price stabilization, market and macroeconomic stability. It also aims at delivering food in periods of national disaster as well as food aid to regional markets.

PROCESSING: In Nigeria today, there are broadly two types of food processing: cottage level and industrial processing. Due to insufficient food inspection and standards enforcement, food processing often involves output of uneven quality especially at the cottage level. The challenge sometimes emerges from a lack of standards or when these are present, insufficient enforcement or a lack of enabling systems. For horticultural crops with export market potential, that imposes a quality penalty as well e.g. recent restrictions on Nigerian beans exports to the European Union due to the presence of contaminants. Rectification of the challenge will require changes to processing standards, training, equipment, and inspection protocols.

Research Institutions and Innovation: Horticultural research is recognized as a critical enabler of economic growth. It is therefore prioritized by the constitution and explicitly assigned as the primary responsibility of the Federal Government. Thus, the importance of horticultural research on the policy agenda of the Federal Government, towards national food security, import substitution and job creation cannot be overemphasized. To this end, the Federal Government will engage its institutions and bodies at different locations in the country, to conduct research for increased horticultural productivity and to make the research results available to farmers and other actors in the horticultural development of the states. In this regard, institutions and organizations owned by the Federal Government that make up the National Agricultural Research System (NARS) comprise 15 Commodity-based Research Institutes, 11 Federal Colleges of Agriculture, a specialized National Agricultural Extension Institute, over 50 Faculties of Agriculture in regular Federal Universities; and 3 specialized Universities of Agriculture. The activities of these institutions come under the purview of Agricultural Research Council of Nigeria (ARCN), which oversees their operations. In addition, Nigeria hosts a number of relevant international research institutions e.g. the International Agricultural Research Centre (IARC), and the International Institute of Tropical Agriculture (IITA).

The lists of some important Nigerian universities with agricultural colleges and schools, as well as the major research institutes can be seen in the table below.

Horticultural Crop Production from Various Producers across Nigeria

TOMATOES, ONIONS AND OTHER VEGETABLES

In Nigeria, the bulk of tomatoes are produced in Kaduna State, with Kano being second. The production is estimated at 3,600,000 metric tonnes per year. The centres of consumption being the large urban centres in the South. The production of onions, the second most important vegetable in Nigeria, is also concentrated in the Northern part of the country. Kaduna State is the largest producer, followed by Kano. The total Nigerian production was almost 18,000,000 metric tonnes in recent times. Large quantities are also imported from Niger, which is the major supplier in the region. Onions, tomatoes and other vegetables are often produced in mixed cropping systems. They are grown to a large extent in fadama lands (seasonally irrigated flood plains in the Northern savannah) (Hussaini and Abayomi 2010).

Onions offer good margins, but come at a high risk. The risk consists of natural risks, such as pests and diseases, droughts and winds. The main risk is the market risk, which is difficult to control for the farmers. The production is highly fragmented among small farms and the costs for marketing are high. Traders usually have a group of more or less loyal producers who they patronize and bind by means of credits, advice and provision of inputs. Farmers could reduce the market risk by forming cooperatives and get more market power in the chain (Alimi and Wall 2005).

Tropical fruits

Bananas including plantains, (Musa spp.) are among the major commodities used in Sub-Saharan Africa to combat food insecurity. The production in Nigeria is estimated at 5,351,000 metric tonnes. It is estimated that about 70 million people in West and Central Africa derive more than 25% of their carbohydrates from plantains, making them one of the most important sources of food energy throughout the African lowland humid forest zone. “The consumption of plantain has risen tremendously in Nigeria in recent years because of the rapidly increasing urbanization and the great demand for easy and convenient foods by the non-farming urban populations. Besides being the staple food for many people in more humid regions, plantain is a delicacy and favoured snack for people even in other ecologies. A growing industry, mainly plantain chips, is believed to be responsible for the high demand being experienced now in the country.” (Akinyemi et al., 2008). The plantain is ranked third among starchy staples, after cassava and yam. It is often intercropped with cocoa, where the plantain serves as a shade crop. This is common in Western Nigeria, where cocoa is mostly produced. Plantain is also intercropped with cassava and yam.

It is therefore imperative to look for other horticultural crops that are already produced with the right varieties, or where varietal conversion can be achieved easily and quickly. Existing horticultural crops like citrus (3.8 million t/yr production) and mango (850,000 t/yr production) are generally not suitable for export. The citrus is planted for local consumption and the climate in the primary production area which is Benue State is not favourable for suitable export quality (the fruit does not turn orange, the acid/sugar balance is not good). Citrus can be processed into juice. The local markets will be the most suitable, as the international market is dominated by Brazil, where the quality is very high and the price/quality ratio very advantageous, with good shipping rates to anywhere in the world. The same goes for mango. The varieties requested are Kent and Keitt and to my knowledge these are not widely available in Nigeria. Besides, the fruit fly is causing much damage to the mango, which is an enormous problem all over West Africa.

COLLEGES/UNIVERSITIES	PLACE	STATE	WEBSITE
Federal College of Horticulture	Dadin Kowa	Gombe	http://services.gov.ng/horticultural-college-gombe
Federal College of Agricultural Produce Technology	Kano	Kano	http://fcapt.academia.edu/
Federal College of Animal Health and Production Technology	Moor Plantation	Ibadan	http://www.fcahpt.edu.ng/
Federal College of Agriculture	Ibadan	Ibadan	http://www.fcaib.edu.ng/
Federal College of Agriculture	Ishiagu	Ebonyi	http://www.fcaishiagu.edu.ng/
Federal College of Animal Health and Production Technology	Vom	Plateau	http://www.fcahpt.edu.ng/
National Horticultural Research Institute (NIHORT)	Ibadan	Oyo	www.arcnigeria.org
Agricultural Research Council of Nigeria	Abuja	FCT	http://www.arcnigeria.org/
International Institute for Tropical Agriculture (IITA) / CGIAR	Ibadan	Oyo	http://www.iita.org/iita-ibadan-nigeria
Ahmadu Bello University	Zaria	Kaduna	http://www.abu.edu.ng/
Federal University of Technology Owerri	Owerri	Imo	http://www.futo.edu.ng/
Kwara State University	Ilorin	Kwara	http://www.kwasu.edu.ng/
Landmark University	Omu-Aran	Kwara	http://lmu.edu.ng/
Ladoke Akintola University of Technology	Ogbomosho	Oyo	http://www.lautech.edu.ng/
Michael Okpara University of Agriculture	Umudike	Abia	http://mouauportal.edu.ng/
Modibbo Adama University of Technology	Yola	Adamawa	http://mautech.edu.ng/
Obafemi Awolowo University	Ile-Ife	Osun	http://www.oauife.edu.ng/
Federal University of Agriculture	Abeokuta	Ogun	http://www.unaab.edu.ng/
University of Agriculture	Makurdi	Benue	http://uam.edu.ng/
University of Ibadan	Ibadan	Oyo	http://ui.edu.ng/
University of Nigeria	Nsukka	Enugu	http://www.unn.edu.ng/
Abubakar Tafawa Balewa University	Bauchi	Bauchi	http://atbu.edu.ng/

Recommendations

It is recommended that international organizations such as Islamic Organization for Food Security and Islamic Development Bank should focus on the bilateral trade and investment strategy on a limited number of agricultural sector, whereby the some horticultural crops seems to provide most opportunities to achieve multiple policy objectives. Investments in sectors such as horticulture (fruits and vegetables) have high potential – when the sector is professionalised by improving the horticultural business for small and medium enterprises investment scheme, value chains and agri-logistics and climate change resilience – to contribute to food and nutrition security and income generation in the Nigeria.

I urge all partners to step up their efforts towards the socio-economic empowerment of farmers of horticultural crops as a key foundation cornerstone for the achievement of the zero hunger tolerance Sustainable development goals (SDGs) in our lifetimes.

ABOUT THE AUTHOR

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IOFS visits research centers and institutes of NASEC in Almaty

27-28 May 2021

27-28 May 2021 IOFS delegation were in official visit to the research centers and institutes of «National Agrarian Science and Education Center» non-commercial JSC (NASEC).

The main purpose of the visit was to visit research centers and institutes of NASEC within the framework of the implementation of the Action Plan between IOFS and NASEC signed on 18 May 2021. The Action Plan includes cooperation within the framework of joint programs such as the Extension network, Centers of Excellence for Development of Crop and Livestock, Centers for the Development of Plant and Animal Genetic Resources, Water Management in Agriculture, Transboundary Pest Control Management and others.

Delegation visited several research institutes located in Almaty region: Kazakh National Agrarian University, Kazakh Scientific Research Veterinary Institute, Research and Production Center of Agro Engineering, Kazakh Research Institute of Soil Science and Agricultural Chemistry named after U. Uspanov, Kazakh Research Institute of Agriculture and Plant Growing, Branch of the Research Institute of Sheep Breeding, Kazakh Scientific Research Institute of Animal Husbandry and Forage Production, Kazakh Scientific Research Institute of Fruit and Vegetables and Kazakh Research Institute of Processing and Food Industry.

During the visit IOFS delegation exposed to the current areas of activity and research findings of the Institutes and their research centers were presented, as well as visits to innovation centers and laboratories.

The delegation also visited the International Research Centre «Water Hub» at KazNARU, the aim of which is to find and transfer the best innovative technologies, finding new knowledge in solving problems of efficient water management.

Besides the above IOFS delegation visited pilot fields - stationary plots of land for field experiments, and experimental agricultural stations of the Kazakh Research Institute of Agriculture and Plant Growing.

Opportunities for further development and expansion of the partnership between IOFS and NASEC Institutes and research centers were discussed during the meetings, including through knowledge exchange and best practices, joint research programs and projects, such as programs for the development of national gene banks, food and organic safety, halal products and food balance databases.

THE STATUS AND PROBLEMS OF BIODIVERSITY CONSERVATION IN KAZAKHSTAN

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One of the important foundations of the Concept of transition of mankind to the principles of sustainable development is the conservation of biodiversity of animal and plant species, communities and ecosystems. In the framework of this problem, it is recognized that preservation of life on Earth is a task of all humanity and a condition for its survival on the planet.

The main provisions in the field of environmental protection are fixed in the Constitution of the Republic of Kazakhstan, according to which the state aims to protect the environment favorable for human life and health. The «Kazakhstan-2050» strategy sets clear guidelines for building a stable and efficient economic model based on the country's transition to a «green» development path. Kazakhstan is a member to a number of international agreements related to the conservation and sustainable use of biological diversity, including the Convention on Biological Diversity, Convention on International Trade in Endangered Species of Wild Fauna and Flora, Convention on the Conservation of Migratory Species of Wild Animals, Convention on Wetlands of International Importance mainly as Waterfowl Habitat, Cartagena Protocol on Biosafety to CBD, Convention for the Protection of the World Cultural and Natural Heritage, as well as the UN Convention to Combat Desertification.

The vision of the process of conservation and sustainable use of biodiversity in Kazakhstan consists of 14 points, including integration of the national ecological network of the Republic of Kazakhstan into international ecological networks; integrated rational and sustainable use of biodiversity components; conservation of genetic resources, ensuring access to them and their use on a fair and equitable basis; introduction of ecosystem approach and improving efficiency in ecosystem management; conservation of agro-biodiversity in agriculture through restoration and reduction of areas, downed and degraded pasture ecosystems and restoration of agro-biodiversity on fallow lands taken out of agricultural turnover; development of organic farming, contributing to the conservation of biodiversity in agriculture and production of environmentally friendly products.

The Republic of Kazakhstan is located in the heart of Eurasia, occupying the central and southern latitudes of the temperate belt from 55°26 north latitude' to 40°59' north latitude and from 46°05' to 87°03' east longitude. The length of the country is 1600 km from North to South and 3000 km from West to East, the area is 2.72 million km². The territory of Kazakhstan has a unique set of landscape complexes: from deserts to highlands and mediterranean ecosystems. Due to the unique combination of natural complexes of steppes, deserts, mountains, large intracontinental water bodies with rivers flowing into them and well developed deltas, characterized by the greatest diversity of types of ecosystems in Central Asia. Desert ecosystems account for 44% of the territory, Steppe ecosystems for 42%, Mountain ecosystems for 12%, forest-steppe ecosystems for 1% and Water ecosystems for 1%. Flora of Kazakhstan according to a number of estimates includes more than 13 thousand species, including more than 5.8 thousand species of higher vascular plants, about 5 thousand mushrooms, more than 0.4 thousand lichens, over 2 thousand algae, about 0.5 thousand bryophytes. Among plants 14% of species are endemics.

The modern fauna of Kazakhstan is rich and insufficiently studied. Suffice it to say that supposedly there are at least 80 thousand species of invertebrates, including at least 50 thousand species of insects. There are 890 species of vertebrates in the republic, which are currently studied to varying degrees. It should be noted that Kazakhstan has huge areas of preserved steppe ecosystems that have already been virtually destroyed in other countries of Eurasia, thanks to which most populations of steppe species have found refuge here. These are globally threatened species such as the saiga antelope, marmot, steppe mouse, a number of marmot and others, and of birds - the steppe harrier, gyrfalcon, steppe tirpus, duck and a number of others. There are species of vertebrates that are considered the wild ancestors of domestic animals on the territory of the Republic. Among mammals these are mouflon, arkhar, wild boar, kulan, wolf, spotted cat and a number of others. Among birds these are mallard, gray goose, quail and others. Among amphibians and reptiles, the most important as a genetic resource are species of poisonous snakes: steppe and common vipers, the moccasin, as well as species used in traditional oriental medicine: Semirechensk frog-trap, oriental boa constrictor, etc. An example of commercial demand for reptiles is the Central Asian tortoise, which was an important export item in the recent past. The total number of fish and fish-like creatures of Kazakhstan is 147 species. Out of all species diversity of fishes and cyclostomes, about 5-8 forms, including hybrids, are currently being artificially bred.

The absolute drivers of threats to biodiversity are human needs for food, fiber and timber, water, energy, and space for infrastructure development. As human populations and the global economy grow, so do the pressure on biodiversity.

According to official data in Kazakhstan, up to 15% of agricultural land is used irrationally. About 125 million hectares of pastures are not watered and not used, more than 20 million hectares of pastures adjacent to settlements are classified as degraded due to irrational use. Pastures are the habitat of many living organisms. There are over 6 thousand plant species, about 500 species of birds, 178 species of animals, 49 species of reptiles, 12 species of amphibians, and in the rivers and lakes 107 species of fish can be found. Irrational use and degradation processes occurring in pastures and hayfields have a negative impact and make these species very vulnerable. Among its main causes should be attributed the negative impact of anthropogenic activities and changes in habitat conditions. Accordingly, biodiversity in degraded areas is reduced and sharply transformed compared to natural landscapes.

the importance of the ecosystem approach. The ECOSYSTEM APPROACH is when not individual species are considered, but all species combined into a single system. In her opinion, the low efficiency of biodiversity conservation in our country is that actions are scattered. There is no unified program, there are no clearly identified problems in specific regions.

She also stressed that there is a need to make a detailed large-scale ecosystem map. We do not have such map at the moment. Analyzing maps of different years, she came to the conclusion that maps of the early twentieth century were richer and more accurate than modern ones. This indicates that nowadays this activity is not given due importance in our country. Not enough money is allocated for the production of such maps. And they require large expenditures - field work, synchronization, etc.

إنتاج المحاصيل البستانية في نيجيريا: التحديات وسبل المضي قدمًا

بقلم أبو بكر أحمد
قسم تكنولوجيا البستنة ، الكلية الفيدرالية للبستنة ، دادين كوا ، ولاية غومبي ، نيجيريا.

خلفية البلد والجغرافيا الطبيعية لنيجيريا

نيجيريا هي الدولة الأكثر تعدادا للسكان في إفريقيا والسابع من حيث عدد السكان في العالم، حيث يقدر عدد سكانها حاليًا بنحو 200 مليون نسمة، ويستمر عدد سكان البلاد في النمو بمعدل سنوي قدره 3.2٪ نتيجة ارتفاع معدل الخصوبة (5.38 طفل لكل امرأة)، ويساهم الضغط على الأراضي والموارد الأخرى في المناطق الريفية في الهجرة السريعة إلى المدن، وتتمتع نيجيريا بواحد من أعلى معدلات النمو الحضري في العالم بنسبة 4.1٪، واعتبارًا من عام 2015 احتلت نيجيريا المرتبة العشرين بين أكبر الاقتصادات في العالم، حيث بلغت قيمتها أكثر من 550 مليار دولار و1 تريليون دولار من حيث الناتج المحلي الإجمالي الاسمي وتعادل القوة الشرائية على التوالي، وتفوقت نيجيريا على جنوب إفريقيا لتصبح أكبر اقتصاد في إفريقيا في عام 2014.

نيجيريا عضو في المجموعة الاقتصادية لدول غرب إفريقيا (ECOWAS)، والاتحاد الأفريقي (AU)، والأمم المتحدة (UN)، والمنظمة الإسلامية للأمن الغذائي (IOFS)، والبنك الإسلامي للتنمية (IsDB)، ومنظمة التعاون الإسلامي (OIC)، ومنظمة البلدان المصدرة للنفط (OPEC) والمنظمات الدولية الأخرى.

أهمية المحاصيل البستانية في نيجيريا

إن سلاسل القيمة المحسّنة في البستنة لها تأثير إيجابي على حد سواء بالنسبة لسكان الريف، الذين يعملون غالبًا في الزراعة، وكذلك الطبقة الحضرية المتنامية التي تحتاج إلى الوصول إلى المنتجات البستانية، وتعتبر المحاصيل البستانية ذات أهمية غذائية كبيرة للإنسان لأنها توفر الفيتامينات والمعادن والألياف التي تشتد الحاجة إليها، وهي كذلك غذاء وقائي مهم ومفيد للغاية للحفاظ على الصحة والوقاية من الأمراض.

سبل المضي قدمًا نحو تحسين الإنتاجية

خصوبة التربة: تتطلب خصوبة التربة الاهتمام في ضوء الحاجة إلى الحفاظ على مستويات كافية من مغذيات التربة الكلية والجزئية في ظل أنظمة الإنتاج المكثفة التي تزيل المغذيات من مناطق البستنة، ويؤدي تآكل التربة في جنوب شرق نيجيريا والتصحر في الشمال بسبب إزالة الغابات إلى تآكل التربة السطحية بطبقات المغذيات ويشكل تهديدًا لخصوبة التربة، كما يؤدي تغير المناخ وارتفاع درجة الحرارة إلى تسريع تفكك المادة العضوية في التربة التي تعتبر ضرورية للاحتفاظ بالمياه وتنمية الجذور خاصة المحاصيل الشجرية.

الوصول إلى المعلومات والمعرفة: من أجل زيادة الإنتاجية البستانية وتحسين أعمالها على الصعيدين الوطني والدولي، من الضروري توفير المعلومات الصحيحة وفي الوقت المناسب للتخطيط الاستراتيجي واتخاذ القرار السليم والملائم، وهذا مهم لجميع أصحاب المصلحة في القطاع، بما في ذلك المزارعين وموردي المدخلات والمعالجات والتجار وصانعي السياسات وشركاء التنمية والباحثين، ويمكن للمعلومات المناسبة أن تزيد من حدة الفرص وتوضح الوصول إلى الأسواق وتمكن المشاركين من اتخاذ خيارات فيما يتعلق بكيفية استخدام الموارد المحدودة، مثل خدمات الدعم الإضافية.

الوصول إلى المدخلات: لا يزال الوصول إلى المدخلات مثل البذور/الشتلات والأسمدة يمثل تحديًا لتحقيق الإنتاجية البستانية المثلى.

سبل المضي قدمًا نحو إدارة الإنتاج

أنظمة المياه/الري: تعتبر المياه سلعة نادرة نسبيًا للإنتاج وبالتالي فهي تتطلب الاهتمام، كما تتطلب زيادة إنتاجية المحاصيل البستانية استخدامًا رشيدًا للمياه الإضافية من خلال الري، ويعد الاستخدام الأمثل لموارد المياه المتاحة أمرًا مهمًا ويمكن تحقيقه عن طريق اختيار المحاصيل البستانية ذات الاحتياجات المائية المحدودة واستخدام تقنيات الحفاظ على المياه وكذلك طرق الري الفعالة، ويؤدي تكثيف إنتاج المحاصيل البستانية، إلى جانب تأثيرات تغير المناخ مثل التصحر وزيادة التبخر، إلى تقليل المياه السطحية، وفي الوقت الحاضر، تستخدم نيجيريا نظامًا مبنيًا على سلطات أحواض الأنهار لتخصيص المياه في مناطق محددة من البلاد.

التخزين: بالنظر إلى معدلات خسارة ما بعد الحصاد الحالية التي تصل إلى 60٪ لمعظم المحاصيل البستنية القابلة للتلف، تحتاج نيجيريا إلى تنفيذ حلول تخزين جديدة بسرعة في نظامها الزراعي وخاصة قطاع البستنة، وعلى المستوى الوطني، استثمرت نيجيريا مؤخرًا 66 مليار نيرة نيجيرية (173,684,210 دولار أمريكي) لإنشاء 15 غرفة تبريد، و33 مجمعًا للصوامع ، و 25 مركزًا لتجميع الحبوب، و9 وحدات من مستودعات بلومبرج، والتي تمت خصخصتها الآن عن طريق الامتياز، ويهدف المشروع، الذي هو في مراحل مختلفة من الإنجاز، إلى تخزين ما يصل إلى 5٪ من الناتج الوطني، وبالإضافة إلى ذلك، إذا نجح المشروع، فسوف يساعد في الحفاظ على الأمن الغذائي الوطني من خلال استقرار أسعار الغذاء والسوق والاقتصاد الكلي، كما يستهدف المشروع إلى توفير الغذاء في فترات الكوارث الوطنية وكذلك تقديم المساعدات الغذائية إلى الأسواق الإقليمية.

الكلية/الجامعة	مكان	ولاية	الموقع الإلكتروني
الكلية الفيدرالية للبستنة	دادين كوا	غومبي	http://services.gov.ng/horticultural-college-gombe
الكلية الفيدرالية لتكنولوجيا الإنتاج الزراعي	كانو	كانو	http://fcapt.academia.edu/
الكلية الفيدرالية لصحة الحيوان وتكنولوجيا الإنتاج	مور بلانتيشن	إبادان	http://www.fcahpt.edu.ng/
الكلية الفيدرالية للزراعة	إبادان	إبادان	http://www.fcaib.edu.ng/
الكلية الفيدرالية للزراعة	إيشياغو	أيبوني	http://www.fcaishiagu.edu.ng/
الكلية الفيدرالية لصحة الحيوان وتكنولوجيا الإنتاج	فوم	بلاتيو	http://www.fcahpt.edu.ng/
المعهد الوطني لبحوث البستنة (NIHORT)	إبادان	أويو	www.arcnigeria.org
مجلس البحوث الزراعية في نيجيريا	أبوجا	منطقة العاصمة الاتحادية	http://www.arcnigeria.org/
المعهد الدولي للزراعة الاستوائية CGIAR/(IITA)	إبادان	أويو	http://www.iita.org/iita-ibadan-nigeria
جامعة أحمدو بيلو	زاريا	كادونا	http://www.abu.edu.ng/
جامعة اوري الفيدرالية للتكنولوجيا	اوري	إمو	http://www.futo.edu.ng/
جامعة ولاية كوارا	إلورين	كوارا	http://www.kwasu.edu.ng/
جامعة لاندمارك	اومو-أران	كوارا	http://lmu.edu.ng/
جامعة لادوك أكينتولا للتكنولوجيا	أوغبوموشو	أويو	http://www.lautech.edu.ng/
جامعة مايكل أوكبارا للزراعة	أوموديكي	أبيا	http://mouauportal.edu.ng/
جامعة موديبو أداما للتكنولوجيا	يولا	أداماوا	http://mautech.edu.ng/
جامعة أوبافيمي أوالوفو	ايفي	أوسيون	http://www.oauife.edu.ng/
الجامعة الفيدرالية للزراعة	أبيوكوتا	أوجين	http://www.unaab.edu.ng/
الجامعة الزراعية	ماكوردي	بنويه	http://uam.edu.ng/
جامعة إبادان	إبادان	أويو	http://ui.edu.ng/
جامعة نيجيريا	نسوكا	إينوجو	http://www.unn.edu.ng/
جامعة أبو بكر تافاوا باليوا	باوتشي	باوتشي	http://atbu.edu.ng/

التصنيع: هناك نوعان رئيسيان من تصنيع الأغذية في نيجيريا اليوم، وهما المنزلي والصناعي، ونظرًا لعدم كفاية الرقابة على جودة الأغذية والالتزام بالمعايير، غالبًا ما يكون تصنيع الأغذية ذا جودة غير متساوية خاصة بعد التصنيع المنزلي، كما تنشأ مشاكل أحيانًا من الافتقار إلى المعايير، وفي حالة وجودها، من عدم كفاية تطبيقها أو الافتقار إلى الأنظمة المناسبة، وبالنسبة للمحاصيل البستانية المنتجة للتصدير فإن أوجه القصور المذكورة أعلاه تؤدي أيضًا إلى عقوبات الجودة، مثل القيود الأخيرة على صادرات الفاصوليا النيجيرية إلى الاتحاد الأوروبي بسبب وجود الملوثات فيها، وسيتطلب تصحيح المشاكل المذكورة تغييرات في معايير التصنيع والتدريب والمعدات وبروتوكولات الرقابة.

مؤسسات البحوث والابتكار: تعتبر البحوث البستانية على أنها عامل مساعد حاسم للنمو الاقتصادي، ولذلك فقد منحها الدستور الأولوية وتم تعيينها باعتبارها المسؤولية الأساسية للحكومة الفيدرالية، وبالتالي، لا يمكن المبالغة في التأكيد على أهمية البحوث البستانية في جدول أعمال السياسات للحكومة الفيدرالية فيما يتعلق بضمان الأمن الغذائي الوطني وإحلال الواردات وخلق فرص العمل، وتحقيقا لهذه الغاية ستشرك الحكومة الفيدرالية مؤسساتها وهيئاتها في مناطق مختلفة من البلاد لإجراء البحوث من أجل زيادة إنتاجية البستنة وتقديم نتائج هذه البحوث للمزارعين والجهات الفاعلة الأخرى في تنمية البستنة بولايات البلاد، وفي هذا الصدد، تضم المؤسسات والمنظمات المملوكة للحكومة الفيدرالية، والتي تشكل النظام الوطني للبحوث الزراعية (NARS)، **15** معهدًا علميًا للبحوث المتخصصة في السلع الأساسية، و**11** كلية الزراعة الفيدرالية، والمعهد الوطني للإرشاد الزراعي، وأكثر من **50** كلية للزراعة في الجامعات الفيدرالية العادية، و**3** جامعات زراعية، وتدخل أنشطة هذه المؤسسات ضمن اختصاص مجلس البحوث الزراعية النيجيري (ARCN)، الذي يشرف على عملياتها، بالإضافة إلى ذلك، تستضيف نيجيريا عددًا من مؤسسات البحوث الدولية ذات الصلة على سبيل المثال المركز الدولي للبحوث الزراعية (IARC) والمعهد الدولي للزراعة الاستوائية (IITA).

يمكن الاطلاع على قائمة الجامعات النيجيرية المهمة مع الكليات والمدارس الزراعية، وكذلك معاهد البحوث الرئيسية في الجدول أدناه.

إنتاج المحاصيل البستانية من مختلف المنتجين في جميع أنحاء نيجيريا

الطماطم والبصل والخضروات الأخرى

في نيجيريا، يتم إنتاج الجزء الأكبر من الطماطم في ولاية كادونا، وتأتي في المرتبة الثانية كانو، ويقدر إنتاج الطماطم بـ3600000 طن متري سنويًا، وتعد مراكز الاستهلاك الرئيسية المراكز الحضرية الكبيرة في الجنوب، كما يتركز إنتاج البصل، وهو ثاني أهم الخضروات في نيجيريا، في الجزء الشمالي من البلاد، ويعد أكبر منتج البصل في البلاد ولاية كادونا، تليها كانو، وبلغ إجمالي الإنتاج النيجيري حوالي 18000000 طن متري في الآونة الأخيرة، كما يتم استيراد كميات كبيرة من النيجر، وهي المورد الرئيسي في المنطقة، وغالبًا ما يتم إنتاج البصل والطماطم والخضروات الأخرى في أنظمة المحاصيل المختلطة، يتم زراعتها إلى حد كبير في أراضي فاداما (السهول الفيضية المروية موسميا في السافانا الشمالية) (Hussaini and Abayomi 2010).

يقدم **البصل** عوائد جيدة لكنه ينطوي على مخاطر عالية، منها المخاطر الطبيعية مثل الآفات والأمراض والجفاف والرياح، ولكن الخطر الرئيسي هو مخاطر السوق، والتي يصعب السيطرة عليها على المزارعين، والإنتاج في نيجيريا مجزأ للغاية بين المزارع الصغيرة وتكاليف التسويق مرتفعة، وعادة ما يكون لدى التجار مجموعة من المنتجين المخلصين إلى حد ما والذين يرعونهم ويلتزمون بهم من خلال القروض والمشورة وتوفير المدخلات، ويمكن للمزارعين تقليل مخاطر السوق من خلال تكوين تعاونيات والحصول على مزيد من القوة السوقية في السلسلة (Alimi and Wall 2005).

الفواكه الاستوائية

يعد الموز من بين السلع الرئيسية المستخدمة في إفريقيا جنوب الصحراء الكبرى لمكافحة انعدام الأمن الغذائي، ويقدر إنتاج الموز في نيجيريا بـ5351000 طن متري، وتشير التقديرات إلى أن حوالي 70 مليون شخص في غرب ووسط إفريقيا يستمدون أكثر من 25٪ من الكربوهيدرات من الموز، مما يجعلهم أحد أهم مصادر الطاقة الغذائية في جميع أنحاء منطقة الغابات الرطبة في الأراضي المنخفضة الأفريقية. "لقد ارتفع استهلاك الموز بشكل هائل في نيجيريا في السنوات الأخيرة بسبب التوسع الحضري السريع والطلب الكبير على الأطعمة السهلة والمريحة من قبل سكان المناطق الحضرية غير الزراعية، وإلى جانب كونه الغذاء الأساسي لكثير من الناس في المناطق الأكثر رطوبة، يعتبر الموز طعامًا شهيًا ووجبة خفيفة مفضلة للأشخاص حتى في البيئات الأخرى، ويُعتقد أن صناعة رقائق الموز المتنامية تسببت في ارتفاع الطلب الذي تشهده البلاد الآن". (Akinyemi وآخرون، 2008). ويحتل الموز المرتبة الثالثة بين المواد الأساسية النشوية بعد الكسافا واليام،

وغالبًا ما يتم زراعته مع الكاكاو حيث يلعب الموز دور محصول ظل، وهذا شائع في غرب نيجيريا حيث يتم إنتاج الكاكاو في الغالب، ولكن يُزرع الموز أيضًا مع الكسافا واليام.

لذلك من الضروري البحث عن المحاصيل البستانية الأخرى التي تم إنتاجها بالفعل باستخدام الأصناف الصحيحة، أو حيث يمكن تحقيق تحويل الأصناف بسهولة وبسرعة، والمحاصيل البستانية الحالية مثل الحمضيات (3.8 مليون طن/سنة من الإنتاج) والمانجو (850 ألف طن/سنة من الإنتاج) ليست مناسبة بشكل عام للتصدير، وتزرع الحمضيات للاستهلاك المحلي والمناخ في منطقة الإنتاج الأولية وهي ولاية بينو غير ملائم لجودة تصدير مناسبة (الفاكهة لا تتحول إلى اللون البرتقالي، والتوازن الحمضي/السكر ليس جيدًا)، ويمكن تحويل الحمضيات إلى عصير، وستكون الأسواق المحلية هي الأنسب حيث تهيمن البرازيل على السوق الدولية، حيث الجودة عالية جدًا ونسبة السعر/الجودة مفيدة جدًا، مع أسعار شحن جيدة إلى أي مكان في العالم، وينطبق نفس الشيء على المانجو، الأصناف المطلوبة هي كينت وكيت، وعلى حد علمي فهذه ليست متوفرة على نطاق واسع في نيجيري، إلى جانب ذلك، تسبب ذبابة الفاكهة أضرارًا جسيمة للمانجو، وهي مشكلة هائلة في جميع أنحاء غرب إفريقيا.

التوصيات

يوصى بأن تركز المنظمات الدولية مثل المنظمة الإسلامية للأمن الغذائي والبنك الإسلامي للتنمية على التجارة الثنائية واستراتيجية الاستثمار في عدد محدود من القطاعات الزراعية، حيث يبدو أن بعض المحاصيل البستانية توفر معظم الفرص لتحقيق أهداف سياسة متعددة، وتتمتع الاستثمارات في قطاعات مثل البستنة (الفواكه والخضروات) بإمكانيات عالية، عندما يتم إضفاء الطابع المهني على القطاع من خلال تحسين الأعمال البستانية لخطة استثمار المؤسسات الصغيرة والمتوسطة وسلاسل القيمة واللوجستيات الزراعية والقدرة على التكيف مع تغير المناخ، للمساهمة في الأمن الغذائي والتغذوي وتوليد الدخل في نيجيريا.

أحث جميع الشركاء على تكثيف جهودهم نحو التمكين الاجتماعي والاقتصادي لمزارعي المحاصيل البستانية كأساس لتحقيق أهداف التنمية المستدامة (SDGs) في حياتنا.