**UNIJERPS**
Unizik Journal of Educational Research and Policy Studies VOL.18 (1);
***July-December, 2024*** https://unijerps.org
***2023 Impact Factor:*** **6.834;** 2022 ***Impact Factor***: 5.156; ***2021 Impact Factor: 5.641;***
***tor: 5.355.*** *Indexing and Impact Factor URL: http://sjifactor.com/passport.php?id=21363*

# EVALUATION OF THE ADOPTION LEVEL OF RECOMMENDED TECHNOLOGIES BY RICE FARMERS BENEFICIARIES OF THE VALUE CHAIN DEVELOPMENT PROGRAMME IN ANAMABRA STATE

**Obiora, Charles Chukwuma (PhD)**
**Charlesobiora113@gmail.com**
**07032472530**

**Anene, kelvin Ndubisi**

**Ohanu Victor Chibueze**

**Department of Agric. Edu. FCE(T) Asaba**
**Delta State Nigeria**

**Osuafor, Ogonna O**
**Department of Agric. Economics and Extension, Nnamdi Azikiwe University, Awka, Nigeria**

**Abstract**

The study aimed at determining the adoption level of recommended technologies by the rice farmers beneficiaries of the value chain programme. Literatures where reviewed on value-chain, value chain development programme in Nigeria and rice value chain. The area of the study was Anambra State and the population for the study included all the 240 beneficiary rice farmers of the VCDP. Data was obtained through structured questionnaire and interview and their items boarded on pre-planting operations, fertilizers and fertilizers applications and harvesting and post-harvesting operations. The data collected were analysis using descriptive statistics such as mean and standard deviation. The study revealed among others that the overall grand mean adoption of farmers was 4.10 with adoption index of 0.82. The farmers socio-economic powers influence their level of adoption of recommended economic. The study recommended that the farmers should be given adequate orientation on new technologies source of the technologies, needs of the technologies and their benefits.

**Key words:** Adoption level, technologies, rice beneficiaries.

## Introduction

Agriculture is the mainstay of the economy of most countries in the world especially the developing countries. Obiora, Anene and Ohanu, (2024) stated that the aim of most agricultural development intervention programmes is to improve the material and social welfare of the people or beneficiaries. Therefore, it is mostly seen as an integrated approach designed to improving the environment and wellbeing of the people of the community (Dooember, et al, 2020). The first step in the process of agricultural development is to abandon the view of agriculture in pre-modern or traditional societies as essential static. However, the problem of Agricultural development is not that oft transforming a static agricultural sector into a modem, dynamic or progressive: sector, but of accelerating theater of increase in agricultural and productivity consistent with the growth of other sectors of a modernizing economy. For the purpose of this work the Value Chain Development Programme which is one of the agricultural programmes introduced by the government of Nigeria to promote agricultural productivity, national economic development is considered. Value chain comprises full range of activities and Services required to bring a particular product through the different phases of production and delivery., to the final consumers (International Fund for Agricultural Development (IFAD) 2018) The term value chain also refers to the importance, that value is added to products across one link to the next one in the chain through the combination of knowledge and resources (Dubey Rajeev Swatentra, Abhishek and Nikhil, 2020; Ovidijus, 2013). Value chain is a business model that describes full range of activities needed in creating a product or service (Tardi and Brock. 2020). It is a concept describing the full chain of a business's activities in the creation of a product ranging from the initial reception of materials all the way through its delivery to market, and everything in between (Chai, 2021).

From the organizational and institutional view, a value chain can be analyzed as the formal and informal arrangements that allows coordination and collaboration links across actors and at different points along the chain (IFAD, 2018).

United States Agency for International Development (2020) and Inter-American Development Bank (2013) described it as a full range of activities that are required to bring a product or service from its conception to its end use, including all the market channels available to all firms. A value chain in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product (Danish Refugee Council (DRC), 2020). It is a set of linked activities that work to add value to a product, and consists of actors and actions that can improve a product while linking commodity producers to processors and markets (Funmilola, Olawale and

Nwadihi, 2018). It is an economic system around a particular commercial product with focus on value addition along sequence of activities of providing inputs, producing- transforming, marketing and consumption. A value chain focuses on the degree of coordination and collaboration between the value chain operators or actors and business model tor particular commercial product (FAO, 2014).

According to SANREM (2020), value chain can be a vertical linking or a network between various independent business organizations and can involve processing. packaging, storage, transport and distribution. It works better when the actors involved cooperate to produce higher-quality products and generate more income for all participants along the chain, as opposed to the simplest kinds of value chains, in which producers and buyers exchange only price information (Norton, 2014). It encompasses the flow of products, knowledge and information, finance, payments, and the social capital needed to organize the producers and communities. Example, for firms that produce goods and services, a value chain operation will comprise the steps that are involved in bringing a product from conception to distribution, and everything in between, such as procurement of raw materials, manufacturing, and marketing activities. Information needed in value chain is especially important to all value chain actors, and flows in two directions: markets inform producers of price, quantity and quality needs, product handling and technology options, while producers inform processors and markets about quantity of production, locations, and timing and production issues (Norton, 2014),.

Agricultural value chain includes a wide range of activities such as development and dissemination of plant and animal genetic material, input distribution, farmer organization, farm production, post-harvest handling. processing. provision of technologies for production, grading facilities, cooling and packing technologies, post-harvest local processing, industrial processing, storage, transport, finance, and feedback from customers or markets (Norton, 2014). At the heart of the agricultural value chain concept, is the idea of actors connected along a chain producing and delivering goods to consumers through a sequence of processes (Henriksen, Riisgaard, Ponte, Hartwich and Kormawa 2010). However "vertical" chain cannot function in isolation and an important aspect of the value approach is that it also considers “horizontal” impacts on the chain such as input supply, Finance provision, extension support and the general enabling environment. The approach t been found useful, particularly by donors, in that it has resulted in a consideration of a factors impacting on the ability of farmers to access markets profitably, leading to a range of chain interventions. It is used both for unbearding existing chains and for do identify market opportunities for small farmers (Wikipedia, 2021).

The value chain approach in agricultural development helps identify weak points in the chain and actions to add more value (Norton, 2014), The framework helps organizations identify and group their own business functions into primary and secondary activities (Chai, 2021). Value chain works best when operators cooperate to produce higher-quality products and generate more income for all participants along the chain,

as opposed to the simplest kinds of value chain, in which producers and buyers exchange only price information. According to Rex (2013), the value chain approach considers the role of existing chain actors, supporting actors, and the policy environment. It allows the actors to look at current challenges ina value chain, as well as the opportunities for improving the efficiency of the value chain and the benefits for everyone involved. Sometimes, participating in a well-functioning value chain brings farmers hot higher incomes alone, but attract young people to farming or persuade them not to leave rural areas by offering better ways to earn money and as well, help the farmer learn new skills and adopt improved practices (Chapota, 2013).

According to International Fund for Agricultural Development (IFAD) (2012), the Value Chain Development Programme (VCDP) is a six-year agricultural development intervention programme initiated and implemented by the Federal Government of Nigeria (FGN) and International Fund for Agricultural Development (IFAD). The programme was designed to improve both cassava and rice value chains for small-scale farmers in six selected states of the Federation Anambra, Benue, Ebonyi, Niger, Ogun and Taraba. The Value Chain Development Programme emerged from the International Fund for Agricultural Development (IFAD) with Country Strategic Opportunities Programme (COSOP) of between 2010 and 2015 periods (IFAD, 2012). The Development with Country Strategic Opportunities Programme which was established on the recommendations of the Country Programme Evaluation (CPE) was Carried out in 2008/2009 April, 2009 by the Federal Government of Nigeria (FGN) and International Fund for Agricultural Development. The Country Programme Evaluation (CPE) recommendations laid emphases on the future IFAD interventions on Agriculture, with emphasis on the enhancement of productivity and access to market (Fumilola, 2018),

The Value Chain Development Programme (VCDP) is anchored on Nigeria governments vision for Agricultural Transformation through commodity value chain approach which was an approach designed to tackle the challenges of smallholder farmers (Value Chain Development Programme (VCDP), 2020). The goal of the programme is to reduce rural poverty, increase food security and accelerate economic growth on a sustainable basis by proffering solutions to limited access to productive assets and inputs, low productivity, limited opportunities for value addition, inadequate support services such as extension services, inability to access rural financial services, inadequate market and infrastructure (Value Chain Development Programme (VCDP), 2020). According to Mgbenika and Mbah (2016), the primary target groups for the VCDP are the poor rural households engaged in cassava and rice value chains. This includes the 15,000 smallholder farmers cultivating up to five hectares of land devoted to cassava and rice, I,680 small-scale processors and 800 traders as direct beneficiaries with emphasis on women and youth; and 22,000 indirect beneficiaries, benefitting largely from the infrastructure improvements, amongst other things.

The Value Chain Development Prouramme is coordinated under the technical responsibility of the Federal Ministry of Agriculture and Rural Development (FMARD) and the State Ministries of Agriculture (MoAs) whilst implementation at the national level receives oversight and guidance from the Value Chain Steering Committee (VCSC), Federal Ministry of Agriculture Development (FMARD) as the lead implementing agency, delegates' the function and day-to-day implementation and coordination responsibilities to the National Programme management Unit (NPMU). In each of the selected states, the daily implementation of the programme is handled by the State Programme Management Unit, which ensures effective and efficient implementation of the programme activities at the state and Local Government Area level. The programmne which is domiciled in the Federal Ministry of Agricultures and Rural Development is implemented through the following components:

- Agricultural Market Development;
- Smallholder Productivity Enhancement: and
- Programme Management and Coordination.

Rice is an important staple food in Nigeria and it is grown in all the States of the Federation and Federal Capital Territory though production varies from State to State and the prevalent types of rice production systems in Nigeria include rain-fed upland, rain-fed lowland, irrigated lowland, deep water floating and mangrove swamp (Chukwudebelu, Igwe and Madukasi, 2015), As a cereal grain, it is the most widely consumed staple food for a large part of the world's human population, especially in Asia (Awika, 2011) and it is one of the commodities with the third-highest worldwide production, after sugarcane and maize. According to Shrestha (2012), rice is more than just a food, as it plays a key role in food security, while at the same time South-East Asian nations have become the leading rice exporting countries. In most Countries, rice cultivation has become the major activity and sources of income for millions of households around the globe. According to Kadiri, Eze, Orebiyi, Lemchi, Ohajianya and Nwaiwu (2014), rice is an increasingly important crop in Nigeria and it is relatively easy to produce for sale and home consumption. In some areas, there is a long tradition of rice growing but for many, it is considered a luxury food for special occasions only. In terms of comparative advantage, rice can be grown in flooded and not-flooded soils because it has both lowland and upland varieties that can adapt to different agro-climatic and soil conditions (Aja and Aja 2014).

According to Merem, Twumasi, Wesley, Isokpehi, shenge, et al (2017), rice in most of the African countries constitutes a bigger portion of the diet on a regular basis, Aside a handful of nations that enjoy self-sufficiency in rice cultivation, rice consumption surpasses its production and substantial amount of the crop are imported to sustain local demand at the expense of hard- earned foreign currency reserves. Rice is virtually cultivated in most of the agro-ecological zones of the country, as it constitutes one major cereal

crop produced by an average Nigerian farmer. According to Food and Agriculture Organization (FAO) (2018), Nigeria is the continent's leading consumer of rice, one of the largest producers of rice in Africa and simultaneously one of the largest rice importers in the world.

According to Global Value Chain Initiative (GVCI) (2007) as cited in Ewuzie, Ifediora and Anctolh (2020), value chain is an arrangement that describes the linkages of participants and their value creating activities that enhance the movement of goods and services from production, processing, marketing to the end user. In agricultural parlance, the term "value chain" is used interchangeably with such terms as supply chain, market system, and agri-food chain, depending on what is being considered. Based on agri-food sector perspective, Drummond and Goodwin (2011), defined value chain as all activities and processes that occur between producers of food and ultimate consumers. According to Donovan, Franzel, Cunha, Gyau and Mithöfer (2015), donor agencies like USAID, FADAMA, and IFAD usage of value chain is in line with World Bank (2010) definition which describes value chain as full range of Value adding activities required to bring a product or service through different phases of Production including the procurement of raw materials and other input. The concept of value was introduced to improve productivity and profitability of the actors in the agricultural sector (Ewuzie, Ifediora and Anctoh. 2020) The notion of agricultural value chain underscores system approach to value added activities where the action of one component in a system affects every other component within the system

According to Ugwuonah (2017), the idea of the value chain is relatively new in agricultural sector it is however, resides at the core of high-impact and sustainable initiatives focused on improving productivity, competitiveness and growth of Small-Medium Enterprises (SMEs).

Recently, most of the agricultural intervention programmes, initiated and implemented in agricultural sectors by both government and non-government agencies (donors) take the value chain approach. The value chain approach has shifted focus and emphasis away from agricultural production to consumer demand, marketing and the coordination of product flow from producer to consumer (Ewuzie, et al, 2020) The value chain concept acknowledges that production must be linked to demand and the critical role of organizing the flow from farmer to consumer opportunities must be taken into consideration. A value chain links the steps a product takes from the producer to the consumer. It. therefore, includes research and development, input suppliers, production, processing, marketing and finance (Norton, 2014).

An agricultural value chain starts with the provision of farm inputs which include seed, fertilizer and other agro chemicals used in the cultivation of crops (Rex, 2013). All the inputs are provided by the agro input dealers to the farmer who uses them in the production of agricultural crops and livestock. Whereas, according to Ewuzie, et al, (2020), the production component entails the actual production activities which culminates in the usage of farm inputs in a way that it is prescribed by the agricultural technologies for a particular commodity to produce the required produce. Value chains are created for the better

understanding of consumer needs to respond to these requirements in better and more strategic way. The trade components entails exchange and distribution activities that are carried on at the primary product level by marketing middlemen, Processing has to do with value addition activities which is concerned with the change in form of the produce. Besides these activities that are central to a value chain, the business environment and provision of allied services also affect the value chain and as such constitute part of the value chain. Activities of the various participants in the value chain are expected to increase the value that is added to the products and Shrestha (2012) further opined that participants' conduct along the chain determines the efficiency and return accruing to each participant.

Since the Value Chain Development Programme began, the government has invested a relatively huge sum of money into it. And it also worthy to find out if the set goals and aims of the programme are achieved which is the area of farmers capacity building, poverty eradication, food security and unemployment reduction. Most importantly the adoption of new agricultural technologies which would enhance the increase in agricultural productivity. This amount the success of the programme is the farmers adopt the introduce technologies

This study rests on evaluating the adoption level of recommended technologies by the rice farmers beneficiaries of the value chain programme.

## Purpose of the Study

Generally the study was to ascertain the adoption level of recommended technologies by the rice farmers beneficiaries of the value chain programme. Specifically, the study determine that the level of adoption of recommended technologies in the areas of re-planting, planting, fertilizers and fertilizer operation, and harvesting and post-harvest operation.

## Methodology

### The Area of Study

The study was conducted in Anambra State, Nigeria. Anmbra State is located in South-Eastern region of Nigeria. Anambra State is sub-divided into four Agricultural zones (AZs) namely: Anambra AZ, Awka AZ, Aguata AZ and Onitsha AZ which spread across the twenty-one local Government.

### Population of the study

The population of the study included all the 240, rice farmers that benefited from the value chain programme in Anambra State.

**Method of data collection**

The data for the study where collected from both primary and secondary sources using a well-structured questionnaire and interview schedule whose items board on evaluating the level of adoption of recommended rice technologies by farms.

To determine the level of adoption of improved rice production technologies, the beneficiaries were asked to indicate their adoption level using a 5-point likert-type adoption scale/stage by Rogers. Their response categories and the corresponding weight values were as follows; aware = 1, interest = 2, evaluation =3, trial = 4, adoption = 5. The adoption indices and adoption level the rice farmers was calculated as follows:

**Validity**

The instrument for data collection was validated by Dr. (Mrs) V.I Owanna of the Imo State Universal Basic Educational Board Owerri.

**Reliability of the instrument**

Reliability index of the instrument was determined to be 0.85

**Method of data Analysis**

The IBM statistical product and Service solution (SPSS) software was used to analyze the data collected.

**Table of Data Analysis: Beneficiaries' Adoption Level Of Recommended Rice Production Technologies**

| **The recommended rice production technologies introduced** | **adoption Mean (Ẋ) Score** | **grand Mean (Ẋ) Score** | **adoption Index** |
|---|---|---|---|
| **Pre-planting stage** | | | |
| Land selection | 4.52 | | |
| Land preparation | 3.90 | | |
| Seed selected from a certified Agro-dealer | 4.08 | 4.17 | 0.83 |
| Seed germination test | 4.65 | | |
| Treatment of seeds with insecticide | 3.71 | | |
| **Planting stage** | | | |

| | | | |
|---|---|---|---|
| Nursery establishment | 3.12 | | |
| Transplanting | 4.10 | | |
| Planting depth and spacing | 5.00 | | |
| Timely planting | 3.21 | 3.90 | 0.78 |
| Use of smart weather reader | 3.95 | | |
| Water management | 3.88 | | |
| Bird scaring equipment | 5.00 | | |
| Weed and pest control | 3.00 | | |
| **Fertilizer and fertilizer application/ha** | | | |
| Timely fertilizer application | 3.95 | | |
| 4 bags of NPK 15:15:15&2bags of urea | 4.10 | | |
| 2 bags of NPK 15:15:15&2bags of urea | 3.12 | | |
| Foliar fertilizer mix application 0 2 litres | 4.70 | 4.06 | 0.81 |
| Spot fertilizer application | 4.10 | | |
| Urea deep placement | 3.72 | | |
| Pre and post emergency spraying | 4.75 | | |
| **Harvesting and post-harvest stage:** | | | |
| Timely harvest | 4.00 | | |
| Mechanical thrashing using thrasher that can thresh and winnow | 5.00 | | |
| Manual threashging packing panicles in bag and beating with stick | 3.81 | 4.40 | 0.88 |
| Bagging in jute bag | 4.00 | | |
| Storage: packing bagged paddy rice in a cool dry | 5.00 | | |
| Overall grand mean adoption | 102.37 | 4.10 | 0.82 |

**Discussion**

The table shows the adoption levels of the improved rice production technologies as introduced by Value Chain Development Program (VCDP) in Anambra State, Nigeria. Entries in the table shows the adoption level of the following improved rice production technologies: pre-planting stage, planting stage, fertilizer and fertilizer application and harvesting and post-harvest stage. Further analysis reveal that overall grand mean adoption of the farmers was 4.10 with adoption index of 0.82. This implies that the majority (82%) of the programme beneficiaries are involved in the various adoption processes of the improved rice production technologies introduced L. the Value Chain Development Program ((VCDP) in Anambra State. The high grand mean score recorded by the programme beneficiaries is an indication that the majority of the programme beneficiaries were in the trial stage of the adoption process, since they are aware of the benefits of the improved rice production technologies. According to Onyemma et al (2019) adoption of

innovations can lead to a desired result in agricultural production only if farmers can comply with the recommended technologies, in terms of input use and timing of operations. Similarly, Nata et al., (2014) adoption of improved technologies apparently offers opportunity to increase production and income substantially and equally reduce food insecurity. Thus, the adoption of the improved rice production technologies is expected to influence the farmers in a number of Ways such as: increased farmers income, increased output, expanded production, ensured more food at home (food security) and increased wellbeing of adopters.

**Pre-planting technologies**

The in Table revealed that the paddy rice farmers adopted I the majority of the improved pre-planting technologies with a mean adoption score of 4.17 These include land selection (Ẋ =4.52), land preparation (Ẋ = 3.90), seed selection from a certified agro-dealer (Ẋ =4.08), seed germination test (Ẋ =4.65) and treatment of seeds with insecticide (Ẋ =3.71). Their grand mean adoption score was 4.17, with adoption index of 0.83.This implies that the majority of the rice farmers were at the trial stage of the adoption process in the use of the improved pre-planting technologies recommended by the Value Chain Development Programme ((VCDP) in the State.

Also, the result further shows that 83% of the farmers were involved in the adoption processes of the improved pre-planting technologies disseminated to them. Specifically, land preparation and treatment of seeds with insecticide were at the evaluation stage, while land selection. Seed selection from a certified agro-dealer and treatment of seeds with insecticide were at their trial stage. The findings of the study is in agreement with the findings of Nwalieji et al. (2014) who reported that the mean adoption score of the PFs in carrying out a seed germination test before planting was at the trial stage.

**4.2.2 Planting technologies**

The data in Table revealed that the programme beneficiaries adopted the improved planting technologies introduced to them by the programmė. The results revealed that the mean adoption score for planting depth and spacing, and bird scaring equipment were at the adoption stage of the adoption process with adoption mean score of 5.00 while transplanting was at the trial stage Ẋ =4.10). Whereas, nursery establishment, weed and pest control, timely planting, use of smart weather reader and water management were at the evaluation stages with mean adoption scores of 3.12, 3.00, 3.21, 3.95, 3.88, respectively. The grand mean score was 3.90 while the adoption index was 0.78 which suggests that the improved planting technologies were generally at their evaluation stage and 78% of the farmers were involved in the adoption process of

the improved planting technologies disseminated to them. The slight high adoption index is an indication that the majority of the programme beneficiaries were aware of the advantage of ensuring the usage of improved planting technologies in planting in other to achieve increased production output.

**Fertilizer and fertilizer application/ha**

tis evident from the result in Table that the mean a adoption score value of the beneficiaries in pre and post emergency spraying was 4.75, foliar fertilizer mix application (2litrs) was 4.70, followed by the fertilizer application of 4 bags of NPK 15:15:15 and 2 bags of urea (4.10), and spot fertilizer application was 4.10. This suggests that these fertilizers and fertilizer application technologies were at their trial stage of the adoption process. The result further show that timely fertilizer application, urea deep placement and fertilizer application of 2 bags of NPK 15:15:15 and 2 bags of urea had adoption mean scores of 3.95, 3.75 and 3.12, respectively. This suggests that these fertilizer and fertilizer application technologies were at their evaluation stages of the adoption process. The grand mean adoption score value tor the improved fertilizer and fertilizer application technologies was 4.06 while the adoption index was 0,81,which suggests that 81% of the programme beneficiaries were fully involved in the adoption process of the fertilizer and fertilizer application technologies. The high adoption index value of 0.81 is an indication that the majority of the programme beneficiaries: applies fertilizers in their beneficiaries. The result is in an agreement with the findings of Okeke, et al (2019) and Onyeneke (2017) who indicated that the rural women rice farmers adopted fertilizer application.

**Harvesting and post-harvest stage**

The table also reveals s that the programme beneficiaries had adoption mean score value of 5.00 in mechanical threshing using thresher that can thresh and winnow at the same time, and storage which involves packing bagged paddy rice in a cool dry place. Meanwhile, the adoption mean score for timely harvest and bagging in a jute bag was 4.00 while manual threshing and packing panicles in bag and beating with stick was 3.81. The findings further reveal that the grand mean score was 4.40, while the adoption index of the farmers was 0.88. This implies that 88% of the programme beneficiaries were involved in the various adoption stage of the adoption processes of harvesting and post-harvest activities. The high adoption index suggests that the majority of the paddy rice farmers are aware of the benefits of harvesting innovations recommended by the programme. The finding of the analysis agrees with the findings of Anang (2019) who reported that technology adoption is important in ensuring agricultural production efficiency of farmers in developing nations where productivity and efficiency gap remain high. In addition, adoption of improved rice production technologies leads to increase in productivity, product quality and higher production returns to the rice farmers. This could in turn generate greater efficiency and national economic growth (Adejoh, Madugu and Shaibu, 2017).

## Findings

The study reveals that the overall grand mean adoption of the farmers was 4.10 with adoption index of 0.82. The rice farmers adopted the majority of the improved pre-planting technologies with a mean adoption score of 4.17. These include land selection ($\dot{X}$ = 4.52), land preparation ($\dot{X}$ = 3.90), seed selection from a certified agro-dealer ($\dot{X}$ = 4.08), seed germination rest ($\dot{X}$ = 4.65) and treatment of seeds with insecticide ($\dot{X}$ = 3.71). Their grand mean adoption score for planting depth and spacing, and bird scaring equipment were at the adoption stage of the adoption process with adoption mean score value of 5.00 while transplanting was at the trial stage $\dot{X}$ = 4.10. whereas, nursery establishment, weed and pest control, timely planting, use of smart weather reader and water management were at the evaluation stages with mean adoption scores of 3.12, 3.00, 3.21, 3.95, 3.88, respectively. The grand mean score was 3.90 while the adoption index was 0.78.

The mean adoption score value of the beneficiaries on pre and post emergency spraying was 4.75, foliar fertilizer mix application (2 liters) was 4.70, followed by the fertilizer application of 4 bags of NPK 15:15:!5 and 2 bags of urea (4.10), and spot fertilizer application was 4.10. The study further revealed that the programmer beneficiaries had adoption mean score value of 5.00 in mechanical threshing using thresher that can thresh and win now at the same time, and storage which involves packing bagged paddy rice in a cool dry place. Meanwhile, the adoption mean score for timely harvest and bagging in jute bag was 4.00 while manual threshing and packing panicles in bag and beating with stick was 3.81. The findings further reveal that the grand mean score was 4.40, while the adoption index of the farmers was 0.88.

## Conclusion

The study evaluated the level of adoption of recommended rice farmers technologies beneficiaries of the study evaluated the level of adoption of recommended rice technologies among be rice farmers technologies of the beneficiaries of the value chain development programme Anambra State. The programme in no doubt empowered the rice farmers in the area of knowledge and skills in rice production and their attitude towards recommended new technologies. The programme which is at its trial stage has brought about increase in rice yield due to high adoption level was recommended technologies by the rice farmers. The adoption level by the rice farmers was impressive and this was due to the educational qualification, farming experience, number of extension contact and age of the farmers were the socio-economic forces that influenced the level of adoption among the farmers.

## Recommendation

Based on the revelations of the study, it was noted that socio-economic factors greatly influence rice farmers adoption of technologies with this, it is recommended that;

- The rice farmers show be enlightened regularly by the extension service providers for the V.C.D.P on improved technologies.
- Mass media should be utilized by the extension service provider could not avail themselves during direct contacts.
- Farmers should be granted financial supports to enable them fund relatively costly recommended technologies.

## References

Awika, J.M (2011). Major cereal grains production and use around the world. ACS symposium series, 1089, 1-13.

Chapota, R (2013). The role of radio in the agricultural value chain approach: The case of the groundnut value chain in Malawi. Retrieved on August 29, 2021 from https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/52685/IDL-52685.pdf

Chia, W. (2021). What is value chain? Retrieved August 29, 2021 from httpss://searchcio.tech target.com/definition/value-chain

Dooember, V.I., Olawale, E.O & David, O. (2020). Effect of value chain development programme on income and food security of rice farmers in Yewa North and Ijebu North-East, Ogun State, Nigeria. International Fund for Agricultural Development (IFAD) Research Report submitted to *Centre for Sustainable Development, University of Ibadan, Ibadan, Nigeria*, pp 1-34.

Danish Refuge Council (DRC) (2020). Analysis of key value chains in the agriculture and food-processing sector. Retrieved on August 23rd 2022 from https://reliefweb.int/sites/reliefweb.int/file/resources/DRC-Value-Chain-Analysis%20Diyala. Pdf

Donovan,J., Franzel, S., Cunha, M., Gyua, A., & Mithofer, D (2015). Guides for Value chain development: a comprarative review. Journal of agribusiness in development and emerging economics, 5(1), 2-23.

Drummond, H.E & Goodwin, J.W., (2011), Agricultural Economics (3rd Edition): University of florida: Person limited

Dubey, S.K., Rajeev, S., Swatentra, P.S., Abhishek, M & Nikhil, V.S (2020). A brief study of value chain and supply chain. Retrieved on August 29,2021 from https://www.research gate.net/publication/344374264_a_brief_study_of_value_chain_and_supply_chain

Elum, Z.A & Obiajunwa, U. (2020). Analysis of institutional credit accessibility among small holder poultry farmers in rivers state, Nigeria Journal of development and agricultural economics, 14(2), 30-40.

Ewuzie, C.O., Ifediora, C.U & anetoh, J.C. (2020). Profitability of actors in rice value chain in Nigeria: A comparative analysis. International journal of innovation research and advanced studies (IJIRAS), 7(7), 59-65.

Funmilola, O.T., Olawale, O. & Nwadihi, M (2018). Effect of IFED value chain development programme on economic welfare of smallholder rice and cassava producers in Anambra State, Nigeria. Retrieved from https://www.researchgate.net/publication/328282907

Global Value chain Chain Initiative (2007). Institute of development studies. Retrieved on August 21,2021 from: www.ids.ac.uk/global valuechains/index.html.

Henriksen, L.F., Riisgaard, L., Ponte, S.., Hartwich, F & Kormawa, P. (2010), Agro-food value chain interventions in Asia: a review and analysis of case studies. Retrieved on August 29, 2021 from https://www.unido.org/sites/default/files/2011-01/workomgpaper_vc_asiafinal_0pdf.

International fund for Agricultural Development (IFAD) (20166). Investing in rural people in Nigeria. Retrieved on 20th of July, 2020 from https://www.ifad.org/documents/38714170/39972302/investing+rural+people+Nigeria-e.pdf/d2c0bc12-5c46-4e92-9d95-1c4dd747fda.

International Fund for Agricultural Development (IFAD) (2018). Agricultural Value chains and its contribution to sustainable Development Goals: The case of high Value Chains on Hills and Mountain Area (HVAP) in Nepal. Retrieved on Augusut 29, 2021 from https://ic-sd.org/wp-content/uploads/2020/01/Antonio-wills-field-practicum-report-HVAP-Nepal-082018.pdf.

Kadiri, F.A ,. Eze, C.C., Orebiyi, J.S., Lemchi, J.I.,Ohajianya, D.O & Nwaiwu, I.U. (2014). Technical efficiency in paddy rice production in Niger Delta region of Nigeria. Global Journal of Agricultural Research 2(2),33-43.

Merem, E.C., Twumasi, Y., Wesely, J., Isokpehi, P., Shenge, M., Fageir, S., Crisler M., Romorno, C., Hines, A., Hirse, G., Ochai, S., Leggett, S., Nwagboso, E. (2017). Analyzing rice production issues in the Niger State Area of Nigeria's middle belt. Food and public Health, 7(1), 7-22.

Mgbenka, R.N & Mbah, E.N (2016). A review of smallholder farming in Nigeria: Need for transformation. European Centre for Research and Development, 3(2) 43-54.

Norton, R. (2014). Agricultural value chains: A game changer for small holders. Retrieved on August 24th from https://www.devex.com/news/agricultural-value-chains-a-game-changer-for-small-holders-83981.

Ovidijus, J. (2013) Value Chain analysis. Retrieved on August 29, 2021 from https://strategicmanagementinsight.com/tools/value-chain-analysis.html.

Obiora, CC. Anene, N.K and Ohanu V.C perception of Rice Farmers Beneficiaries (2024) on the impact of value chain development programme on their livelihood. African Journal of Educational Management, Teaching and Enterpreneurship Studies. Vol. 12(1) May-August, 2024.

Rex, C. (2013). Role of radio in the agricultural value chain approach: the case of the groundnut value chain in malawi . Retrieved on August 29,2021 from https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/52685/IDL-52685.pdf.

Sanrem (20200. Agriculture and value chain. Retrieved on 23rd August, from https://sanremafric a.org/agriculture-and-value-chains/

Tardi, C. & Brock, T. (2020). Value chain. Accessed on August 29,2021 from https://www.investopedia.com/terms/v/valuechain.asp#citation-1

Ugwuonah, G.E. (2017). Market-led approach to agricultural value chain development: issues in investment and wealth creation. University of Nigeria, Inaugural Lecture, Nsukka University of Nigeria press Ltd.

Value Chain Development Programme (VCDP) (2020). Who we are. Retrieved on August 30th, 2021 from https://vcdpnigeria.org/who-we-are/

Wikipedia (2021). Agricultural value chain. Retrieved on August 29, 2021 from https://en.wikipedia.org/wiki/Agricultural-value-chain#Value-Chain-methodologies.

World Bank (2010). Building competitiveness in Africa's Agriculture: A guide to value chain concepts and applications: Discussion paper. Washington. D.C