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Araştırma Makalesi (Research Article)

**Effects of the Delta-Songhai Centre Agricultural Programmes on Beneficiaries in Delta State, Nigeria: Youth Economic Empowerment Approaches**

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**Abstract:** This study was designed to examine the effects of the Delta-Songhai agricultural programs on beneficiaries in Delta State. Some objectives of the study were to: ascertain the type of training, determine the income generation level of the participants, measure the level of empowerment, and measure the level of satisfaction. A sample size of 72 was used in the study. This was obtained from random sampling using a multistage procedure. Results obtained were that male respondents (62.5%) dominated more than female with a mean age of 32 years. Respondents' average farming experience was five years. Respondents (97.2%) adopted poultry records skills, while respondents (94.5%) adopted aquaculture concrete pond techniques. Respondents were greatly empowered by the training program with a pooled mean of 2.89. Respondents' satisfaction level was high with a pooled mean of 2.89. Some constraints faced by the respondents were mostly, insufficient funds from the donor, poor project monitoring, and beneficiaries nonchalant behaviour after programme completion. Correlation result between poultry and aquaculture on income generation showed that poultry was more favourable than aquaculture. The study concluded that the training programme had a great impact on youth empowerment in poultry, aquaculture, piggery, and grass cutter production. It was recommended that these positive impacts should be sustained.

**Delta-Songhai Merkezi Tarım Programlarının Nijerya, Delta Eyaletindeki Faydalanıcılar Üzerindeki Etkileri: Gençleri Ekonomik Olarak Güçlendirilme Yaklaşımları**

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**Anahtar kelimeler**

Tarım Programı,  
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Eğitim,

**Öz:** Bu çalışma, Delta-Songhai tarım programlarının Delta Eyaletindeki yararlanıcılar üzerindeki etkilerini incelemek için tasarlanmıştır. Çalışmanın bazı amaçları; katılımcıların eğitim türünü belirlemek, gelir elde etme düzeyini belirlemek, güçlendirme düzeyini ölçmek ve memnuniyet düzeyini ölçmek. Çalışmada 72 kişilik bir örnekleme büyüklüğü kullanılmıştır. Bu, çok aşamalı bir prosedür kullanılarak rastgele örneklemlerden elde edildi. Elde edilen sonuçlar, erkeklerin (% 62.5) 32 yaş ortalama ile kadınlardan daha baskın olduğuydu. Katılımcıların ortalama çiftçilik deneyimi beş yıldır. Katılımcıların % 97.2'si kümes hayvanı kayıt becerilerini benimserken, % 94.5'ü ise su ürünleri yetiştiriciliği beton havuz tekniklerini benimsemiştir. Ankete katılanlar, eğitim

Güçlendirme,  
Genç çiftçiler

programı ile büyük ölçüde güçlendirilerek memnuniyet düzeyleri, ortalama 2.89'e yükseltildi. Katılımcıların karşılaştığı bazı kısıtlamalar çoğunlukla, yetersiz fon desteği, zayıf proje izleme ve program tamamlandıktan sonra yararlanıcıların kayıtsız davranışlarıydı. Kanatlı ve su ürünleri yetiştiriciliği arasında gelir yaratmadaki korelasyon sonuçları, kümes hayvanları yetiştiriciliğinin su ürünleri yetiştiriciliğine oranla daha olumlu olduğunu göstermiştir. Çalışmada, eğitim programının kümes hayvanları, su ürünleri yetiştiriciliği, domuz yetiştiriciliği ve çim biçme üretiminde gençlerin güçlendirilmesi üzerinde büyük bir etkiye sahip olduğu sonucuna varılmış ve bu olumlu etkilerin devam ettirilmesi önerilmiştir.

## 1. Introduction

The States and Federal Government of Nigeria over the years have formulated policies that will sustain and improve agricultural production and provide trained high-level manpower with technical skills, and project like the establishment of schools of agriculture, investment to train personnel who will become specialists in the field and agriculture program such as Green House Revolution, farm settlement scheme which was established in the 60s by the former eastern and western regional government in Nigeria, the goal was to enhance standards and attract youth into agriculture. In the world today, there is a need for the development of the youth and children. The need for youth is borne on the understanding that youth are leaders of tomorrow, youth development programmes and activities constitute veritable means for preparing the youth to take up future governance positions and responsibilities (Muhammad-Lawal, 2006)

The state agricultural policy of 2006 was framed against the backdrop of subsisting nation all policy on agriculture, 2001, which set the stage for state-level equivalents. Even though the policy came seven years after the state was created, it marked a significant turning point by defining the overall direction and goals of agricultural development, it also laid out the objectives, strategies, and targets for various sub-sectors of agriculture and agricultural support services. It adopted *en bloc* the division of agricultural development roles and responsibilities between the federal, state, local governments, and the organized private sector (Adebayo, 2010).

The state agricultural policy, when review by 2014, aimed at achieving agricultural growth and development for food security, industrial raw materials, gainful employment by youths, and export revenue with the central focus on small-scale crop and livestock farmers and fishermen, the policy also sought to provide an enabling environment for private sector deal in medium to large scale farming, service provision, and agribusiness. Other cognate policy objects were agricultural modernization, enhanced delivery of public agricultural services, particularly agricultural extension and modern agricultural inputs: optimal land and water use in agriculture, prevention of environmental degradation, and development of human resources, other sector-wide issues addressed by the policy include agricultural land, agricultural by-product, industrial crops (oil palm, rubber, cassava, plantain, tomato). There is a need to improve the nation's agricultural policy sector (Adebayo, 2010).

Youths possess a great deal of energy, this is exemplified in their muscular built, physical strength, agility, and youths are able to accomplish tasks requiring a great deal of energy. Unfortunately, this category of people is virtually left out in policies and programmes considerations even though this is a critical state for this group of people since this is a period of transition into adulthood (Akpan, 2010). This group of people is over 1.8-billion in the world today, 90% of whom live in developing countries, where they tend to make up a large proportion of the population and needs to be empowered since this is an important means of improving food security, youth livelihoods and employment (World Bank, 2010; FAO, 2018).

Many of the agricultural programmes on youth empowerment were short-lived and could not succeed in achieving their aims and objectives as perceived gaps. The problems include leadership tussle, lack of funds, inadequate professional leaders, lack of interest, and government attitude. Most youths do not want to apply their energy and time to agriculture. They read only the theory and do not apply it in practice. Ovwigho (2014) reported that youths are reluctant to practice agriculture because of the 'free or cheap' source of income from the oil business in the Niger Delta area.

## 1.1. Objectives of the study

The general objective of the study was to determine the effect of the Songhai-Delta Agricultural Programmes on beneficiaries in Delta State, specific objectives were to:

- i. Describe the socio-economic characteristics of the participants.
- ii. Ascertain the type of training undergone by Songhai Delta Amukpe
- iii. Ascertain the level of adoption of agricultural innovations in poultry and aquaculture sector
- iv. Measure the level of empowerment during the training programme.
- v. Determine the income generation level of aquaculture and poultry project beneficiaries.
- vi. Measure the level of satisfaction in the training of participants
- vii. Identify the problem militating against youth implementation of programme

## 1.2. Hypotheses

Two hypotheses were outlined to guide the study:

H<sub>01</sub>: There is no significant difference between socio economic characteristic and satisfaction level of beneficiaries.

H<sub>02</sub>: There is no significant relationship between income generation level of aquaculture and poultry project beneficiaries.

## 1.3. Related theoretical and empirical literature review

*Concept of Youth in Agriculture and Development Programmes:* The need for youth development is borne on the understanding that youths are the leaders of tomorrow. Youth in agriculture and development programmes constitute veritable means for preparing the youth to take up leadership positions and responsibilities (Mangal, 2009).

In many African countries, development intervention programmes are targeted at women and women without considering the youth, any human population consist primarily of children, youths and adults. Development intervention programmes must be targeted at all groups within the society to avoid rancor and bickering (Ovharhe and Gbigbi, 2016)

Youths play dominant roles in agriculture and community development improvement. There is need to design programmes to enhance their efficiency in agricultural production in view of improved livelihood. The youth stage calls for proper management on the part of the leaders to prevent problems that will annihilate the society. Youth programmes are ostensibly designed to tackle the perennial youth restiveness, idleness and deviant behavior that have come to characterize youth activities in African countries. Youth have a lot of energy that they often misdirect due to absence of guidance. Programmes are needed to attract and manage the potential energy of youths (Ovharhe, 2014; Ovharhe and Gbigbi, 2016)

The increasing realization of the place of the youth in the survival of the society has made developing countries to embark on youth empowerment programme. Ovharhe and Gbigbi, (2016) reflected that small scale enterprise and youth development projects are currently being embarked upon by a number government, non-governmental organizations and clubs as well as international development agencies including the world bank, united nations fund for population activities (UNFPA), united nations educational scientific and cultural organizations (UNESCO) and international fund for agriculture (IFAD).

*Concept of the Delta Songhai Centre:* This concept is an exact replicate of Songhai Centre in Benin Republic. It was established in Delta State after a corporate visit of the then Delta State Executive Council under the leadership of. The Governor of Delta State, Chief James Onanefe Ibori's (1999-2007). The main objective was to provide, opportunities for the then restive youths of Delta State in particular and Nigeria generally, for the acquisition of skills that would make the youths employable and indeed become employers of labour.

The specific objectives were to:

- i. Redirect the attention and energy of youth into agriculture and related income generating activities.

- ii. Provide intensive vocational training for selected young graduates who will in turn establish similar center.
- iii. Facilitate self-employment among youth using locally available resources.
- iv. Encourage trainees to discover and develop a high sense of responsibility through emphasis on self-discipline, dialogue, creativity, initiative and courage.
- v. Assist trainees master the mechanism of operating an integrated farming system.

*Delta Songhai Integrated Farming System:* The Delta Songhai is into modernized and integrated farming system tending to environmental sustainability. The 'no waste' philosophy which means zero emission research initiative (ZERI), where a waste in one section becomes useful and productive in another section. In the piggery unit, the droppings are collected and recycled for the production of gasses, biogas technology. The poultry effluents from the unit, dead organisms, and rotten eggs are used in the generation of maggots which is very rich in nasal protein are used to feed fishes, plants like lemma and water lettuce is there after harvested and cultured to also feed fishes especially the tilapia fishes.

The residues from palm oil processing unit called sludge rich in fat and oil is used for feed formulation for pigs, poultry droppings are applied as organic manure to crops such as maize, watermelon, tomato to boost their growth and productivity. Thus, achieving product recycle as best practices.

In value-addition chain, Delta Songhai adds value to product harvested like the processing of coconut into coconut oil, processing of mango, orange, pawpaw, guava, zobo, ginger all to juices and drinks. Adoptable agricultural practices in Delta Songhai Centre include: fishery, poultry, piggery, quail, grass cutter production, snailery, maggotry, and crop.

*Delta Songhai Empowerment through Training:* Various another have different concept of training, Durlak and Taylor (2007) conceives training as the process applying appropriate educational methodology to the situation in which improved performance can result from effective training as the act of increasing job. From this definition it can be observed that a trainee require a period of tutelage during which he/she performs skills over a period of time and this on the job. Ikoro (2014) seems to equate training with education, he considers the period of teaching, informing and educating people so that they can become well grinded and qualified to do their work and perform in a position of greater difficulty and responsibility, he added that training has to be a 2-way process as someone must teach and someone must learn. Adebayo et al. (2006) asserted that exposure of youths to empowerment training programmes ensure performance in programme implementation.

Songhai-Delta Amukpe welcomes students on industrial attachment programme (IT). Students from various institutions are trained effectively on agricultural activities such as in fishery, poultry, piggery, quail, snail, grass cutter, feed mill, and agro-processing. Institutions such as Delta State University (DELSU), University of Benin (UNIBEN), Niger Delta University (NDU), and Benson Idahosa University (BIU) have benefited from the training. In essence expose students to practical aspect of agricultural discipline, gives students the opportunity to apply their theoretical knowledge to real work situation thereby linking the gap between theoretical and practical approaches, acquaint students with development in agriculture and prepares youths for various job opportunities in agriculture. Such Agricultural programmes include fishery, poultry, quail, snail, feed mill, grass cutter rearing, agro processing. This prepares them to be able to manage their anticipated farms and handle positions in the agricultural sectors.

Youths under Delta State Government (1998 till date) have been involved in initiatives such as skill training entrepreneurial programme (STEP), youth empowerment from agricultural initiatives (YETA), youth agricultural entrepreneurial programme (YAGEP) are programmes were participants across 25 L.G.A were screened and selected to undergo training for life skills, attitudinal change and hand on management in agriculture, thereafter were giving starter packs to establish their farms and businesses.

Another impact of the Delta Songhai Centre is the field visits of primary and secondary schools individuals who became exposed to various agricultural innovations and practices as a result of the excursion.

Cooperate organizations which includes Universal Investment Development Company (UIDC), Shell Petroleum Development Company (SPDC), Niger Delta Development Commission (NDDC) have also be trained on capacity building programme and have all benefited from the modern agricultural practices. These corporate organizations are termed donor agencies.

## 2. Materials and Methods

The study was conducted in Delta State with reference to the Delta Songhai Centre in Amukpe, Sapele. The Delta State is situated at 5.89<sup>0</sup> north latitude, 5.68<sup>0</sup> east longitudes. A multi stage sampling procedure was used in this study. At the *first stage*, the three agricultural zones was selected. The *second stage* involved a simple random selection of 2 Local Government Area (LGAs) from Delta North, 3 LGA from Delta Central and 3 LGAs from Delta South Agricultural Zones. At the *third stage*, a purposive sampling of 100% of the participants under Youth Entrepreneurship Training in Agriculture (YETA) scheme will be identified as registered number of trained participants (144), sample frame. At the *fourth stage*, 50% of the participants was randomly selected from the sample frame; giving a sample size of 72 respondents. Table 1 shows the computation of the sampling procedure.

Table 1. Selection of respondents in the study area (n = 72)

Agricultural Zones (Stage 1)	Local Government Areas(Stage 2)	Total number of Participants (Stage 3)	Selection of Participants (50%)(Stage 4)
Delta North	Ika North-East	18	9
	Ukwuani	18	9
Delta South	Warri South- West	18	9
	Warri North	18	9
	Patani	18	9
Delta Central	Sapele	18	9
	Ughelli North	18	9
	Udu	18	9
<b>Total</b>	<b>8</b>	<b>144</b>	<b>72</b>

Source: Delta Songhai Participants.

*Data collection approach:* The method of data collection was objective-based and guided with the use of questionnaire to elicit responses from respondents (Ovharhe, 2019). The questionnaire comprises both open and close ended questions. Secondary information was obtained from Delta Songhai

*Measurement of Variables:* The socio – economic characteristics of the respondents were measure in line with contemporary standards (e.g. age was measured in years).

*Contact with extension worker:* This was done by appropriate indication as weekly, monthly, quarterly, biannually and annually. To ascertain the level of agricultural practices, some perceived statements were proposed to ascertain the level of agricultural practice in line with poultry and aquaculture beneficiaries to determine their responses. Adoption level was measured in line with Agbamu (2006); Ovharhe (2017) that scores ranging from 5.5 - 10 were considered as high level of adoption; 4.1 - 5.4 were medium level of adoption and 0.0 - 4.0 were low level of adoption in adoption practices by Fadama farmers.

Respondents level of satisfaction of agricultural activities in agreement with Delta Songhai objectives was measured on a 4 point Likert-type scale of very satisfied=4, satisfied =3, unsatisfied =2, poorly satisfied =1 (using 2.5 as mean cut-off point). Respondents level of empowerment was measured by perceptual statements with Likert type weights assigned ranging from strongly agree=4, agree =3, disagree =2, strongly disagree =1. The cut off mean value (2.5) was actualized by  $(4+3+2+1 = 10/4 = 2.5)$ . This measure of empowerment computation by proxy was demonstrated by Ovharhe, and Gbigbi, (2016); supported by Alsop and Heinsohn (2005) and Rahman and Kazi (2007) who allegedly measured the degree of empowerment alongside with a 4-point continuum rating scale. Respondents’ level of income on monthly and annual basis was measured by asking beneficiaries to state their income on applicable monthly standard. An aggregate was compiled into annual format.

The types of training programme undergone by respondents in Delta Songhai was ascertained using a dichotomous scale of “yes” and “no” to obtain the information. Respondents’ constraints were obvious by presentation of perceptual statements to know the level of seriousness of issues as measured on a 4 point likert-type scale of very serious=4, serious=3, not serious=2, not serious=1 with mean cut-off point of 2.50. Constraints measures were done on Likert scale pattern.

*Method of Data Analysis:* Data for this study was analyzed using simple regression for the stated hypothesis.

There is no significant difference between socio economic characteristic and satisfaction level of beneficiaries:

A computation by linear, semi-log and double log forms of regression were used in the analysis. The formula of Linear Regression equation used:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 \dots + b_9 X_9 + e \tag{1}$$

Where,

- Y = Farmers' satisfaction score.
- b<sub>0</sub> = A constant
- b<sub>1</sub> to b<sub>8</sub> = regression coefficient of eight variables.
- X<sub>1</sub> = Age of farmers.
- X<sub>2</sub> = Sex of farmers.
- X<sub>3</sub> = Level of education of farmers.
- X<sub>4</sub> = Farming experience.
- X<sub>5</sub> = Farm size.
- X<sub>6</sub> = Income level.
- X<sub>7</sub> = Household size.
- X<sub>8</sub> = Frequency of contact with extension workers
- e = random error.

Semi-log functional form of regression

$$Y = \log b_0 + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 \dots + b_8 \log X_8 + e \tag{2}$$

Double log functional form of regression

$$\text{Log} Y = \log b_0 + b_1 \log X_1 + b_2 \log X_2 + b_3 \log X_3 \dots + b_8 \log X_8 + e \tag{3}$$

For decision rule, a lead equation was chosen to make conclusion based on (a) the relative magnitude of the R<sup>2</sup>, (b) relative Fcal value of the models, (c) the function that showed more statistical significance.

The second hypothesis was tested using correlation:

Ho<sub>2</sub>: there is no significant relationship between income generation level of aquaculture and poultry project beneficiaries

The correlation formula used:

$$r = \frac{N \sum xy - (\sum x) (\sum y)}{\sqrt{[N \sum x^2 - (\sum x)^2] [N \sum y^2 - (\sum y)^2]}} \tag{4}$$

Where:

- r = correlation coefficient,
- x = values for aquaculture
- y = values for poultry
- N = sampled number of respondents
- ∑ = summation

### 3. Result

Result in Table 2 shows that the mean age of the respondent was 32 years. This is in agreement with the findings of Everline et al (2010) that youths involved in community affairs are within the age bracket of 30 – 34 years. More males (62.5%) were involved in the training programme than females (37.5%). This finding of Adesoji et al. (2006) was not different from this that more males participated in training programmes than females.

Majority of respondents (47.2%) were unmarried as at when the study was conducted. This finding is in disagreement with those of Adesoji et al. (2006), that majority of respondents were married to provide additional source of income for the farm family.

Respondents (36.1%) had as OND/NCE educational attainment level. This results confirmed the level of literacy a participant needs before admission into the training programme. This is in agreement with the findings of Adesoji et al (2006) that most farmers had formal education which helped in fast learning and understanding. Average farm size for most youths was two hectares. This is in agreement with Akintude (2016) who asserted that few youths are interested in farming. The average of house hold size was five persons. Ofuoku, Ovharhe and Agbamu (2019) reported that most families in Delta State have an average of five to seven persons per household.

Respondents' average farming experience was 5 years before inception with the training programme. The highest extension visit was bi-annual (36.1%) as indicated by respondents.

Table 2. Socio-economic characteristics of respondents (n = 72)

Variables	Frequency	Percentage (%)	Mean
<b>Age:</b>			
20-24	10	13.9	
25-29	25	34.7	
30-34	27	37.5	32 years
35-39	10	13.9	
<b>Gender</b>			
Male	45	62.5	
Female	27	37.5	
<b>Marital Status</b>			
Unmarried	34	47.2	
Married	26	36.1	
Divorced	5	6.9	
Separated	6	8.3	
Widow	1	1.5	
<b>Level of Education</b>			
No Formal Education	1	1.4	
Primary	14	19.4	
Secondary	0	0.0	
OND/NCE	26	36.1	
HND/First Degree	20	27.8	
Post Graduate Degree	11	15.3	
<b>Farm Size</b>			
1-3	65	90.2	2
4-6	6	8.4	
7-9	0	0	
10 – 12	1	1.4	
<b>House-hold Size</b>			
1-3	19	26.4	
4-6	42	58.3	
7-9	9	12.5	5
10 -12	2	2.8	
<b>Farming Experience</b>			
1-3	27	37.4	
4-6	28	38.7	
7-9	11	15.2	
10 -12	4	5.9	5
13- 15	2	2.8	
<b>Extension Visit</b>			
Weekly	5	6.9	
Monthly	7	9.7	
Quarterly	24	33.3	
Bi-annually	26	36.1	
Annually	10	13.9	

Source: Field Survey Responses.

### 3.1. Ascertain the types of training empowerment by songhai Delta

Results in Table 3 shows that most of the beneficiaries participated in training for empowerment with high participation as revealed in the following enterprises poultry (94.4%) aquaculture (90.3%) snail production (87.5%) food processing (84.7%) piggery (80.6%) business accounting (75.0%) and grass cutter production (55.6%). Rahman and Kazi (2007) reported that farmers experienced high level of empowerment in aquaculture training programme in Bangladesh.

However, low participation was noticed in maggot breeding (48.6%), feed mill (54.2%) and handicraft (41.7%) Abdoul, Fernand, Salimata and Kalifa (2018) reported that low participation and interest was recorded among farmer using maggot as fish feed business because of the dirty environmental conditions, inadequate supply of poultry waste and low mineral contents.

Table 3. Respondents’ types of training empowerment in Delta Songhai (multiple responses)

Various kinds of training on:	Respondents (yes)	Percentage	Remark
Poultry	68	94.4%	High participation
Aquaculture	65	90.3%	High participation
Snail production	63	87.5%	High participation
Food processing	61	84.7%	High participation
Piggery	58	80.6%	High participation
Business accounting	54	75.0%	High participation
Grass cutter production	40	55.6%	High participation
Maggot breeding	35	48.6%	Low participation
Feed mill	39	54.2%	Low participation
Handicraft	30	41.7%	Low participation

Source: Field Survey Responses (< 50% implies low participation).

### 3.2. Adoptable agricultural innovations in the poultry sector

Table 4a shows that respondents had high levels of adoption of agricultural innovations in poultry enterprises as recorded in record keeping skills (97.2%), sorting and handing of eggs (86.1%), medication provision (86.1%), vaccination techniques (86.1%), litter application (80.6%) and feed formulation (83.3%). Adebayo, Oluwole, Obute, and Olatunji, (2018) reported that youths expressed more interests in poultry business than other aspects of business in Oyo State. While medium levels of adoption of agricultural innovations rates were associated with stocking density (66.7%) and brooding (61.1%). The implication is that many beneficiaries overstock their pens as reported by Ovharhe (2017). Absence of power supply affects breeding. The overall adoption level mean score is 5.5. This implies that adoption level was at high rate. This is different from the findings of Ovharhe (2016) who reported that farmers in the Niger Delta area experienced medium adoption rate in the poultry industry.

Table 4a. Extent of respondents’ adoption of agricultural innovations in poultry (n = 72)

S/N	Techniques	Total no. of adopters and its %	Pooled adoption score	Adoption level
1	Record Keeping	35(97.2)	5.9	High
2	Sorting and Handing of Eggs	31(86.1)	5.6	High
3	Medication provision	31(86.1)	5.6	High
4	Vaccination Techniques	31(86.1)	5.6	High
5	Litter Application	29(80.6)	5.5	High
6	Feed Formulation	30(83.3)	5.5	High
7	Stocking Density	24(66.7)	5.1	Medium
8	Brooding	22(61.1)	4.9	Medium
Overall adoption level = 5.5				

Source: Field Survey Responses.



### 3.3. Adoptable Agricultural Innovations in the Aquaculture Sector

Table 4b shows that respondents had high levels of adoption of agricultural innovations in poultry enterprises as in the use of concrete ponds (94.4%), marketing techniques (88.9%), pond treatment techniques (86.1%), harvesting technique (86.1%), record keeping (83.3%), stocking techniques (83.3%) and water treatment techniques (80.6%). On the other hand, medium levels of adoption was noticeable with breeding techniques (77.8%), storage techniques (69.4%), earthen pond preparation (58.3%) and feed formulation techniques (47.2%). Only maggot breeding technique (27.8%) had low adoption rate. This connotes that many youths do not see it as part of their best practices. The overall adoption level mean score is 5.3. This indicates that adoption level was at medium rate. This is similar to the findings of Ovharhe (2016) who reported that farmers in the Niger Delta area experienced medium adoption rate in the aquaculture industry. Again, aquacultural innovations were poorly adopted by farmers in Lagos State because of complexity and cost in technologies, poor extension contacts, low educational standard of farmers and weak planning (Jaji, Akalode, Agbelemoge and Yusuf, 2012).

Table 4b. Extent of respondents' adoption of agricultural innovations in aquaculture (n = 72)

S/N	Training Activities	Total no. of adopters and its %	Pooled score	adoption	Adoption level
1	Concrete pond preparation	34(94.4)	5.8		High
2	Marketing techniques	32(88.9)	5.7		High
3	Pond treatment techniques	31(86.1)	5.6		High
4	Harvesting technique	31(86.1)	5.6		High
5	Record keeping	30(83.3)	5.5		High
6	Stocking techniques	30(83.3)	5.5		High
7	Water treatment techniques	29(80.6)	5.5		High
8	Breeding techniques	28(77.8)	5.4		Medium
9	Storage techniques	25(69.4)	5.2		Medium
10	Earthen pond preparation	21(58.3)	4.9		Medium
11	Feed formulation techniques	17(47.2)	4.5		Medium
12	Maggot breeding technique	10(27.8)	3.8		Low
Overall adoption level = 5.3					

Source: Field Survey Responses.

### 3.4. Agricultural training empowerment level

The result in Table 5 shows that the respondents generally agreed that they were empowered by the Delta State Government to implement their acquired skills in their various farms after the Delta Songhai empowerment programme. Five categories of beneficiaries responded that they agreed for being empowered with skillful training (mean = 3.13), adequate participation (mean = 3.13), satisfactory input supply (mean = 3.13), technology utilization (mean = 3.13) and income generation increase (mean = 3.13). Only one category of beneficiaries responded that they disagreed for being empowered with safety tips (mean = 2.10). The pooled mean level of the empowerment programme is 2.89 which further translates that all respondents were well empowered during the training programme.

Issues relating to empowerment measurements are technical. Many scholars use *proxy* standards for measurement such as Rahman and Kazi (2007). Similar to this measurement, using rating scale, Ovharhe and Gbigbi (2016) used rating scales to measure the degree of Fadama youth empowerment programme in Delta State. They reported that Fadama youth were satisfied with the levels of empowerment provided for them to become self-employed which was similar to the actions of Delta Songhai.

Table 5. Respondents empowerment measurement level (n = 72)

Variables	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)	Mean	Remark
Skillful training	1	2	54	15	3.15	Agreed
Adequate participation	1	6	47	18	3.13	Agreed
Satisfactory input supply	0	9	58	5	2.94	Agreed
Technology utilization	2	11	52	7	2.88	Agreed
Income generation Increase	5	10	20	37	2.72	Agreed
Safety tips	21	32	10	9	2.10	Disagreed
Pooled mean = 2.89						

Source: Field Survey Responses.

### 3.5. Income generation level of aquaculture and poultry project beneficiaries

Result in (Table 6) displays the monthly and annual income levels generated by beneficiaries. On monthly basis, December had the highest volume of income for both aquaculture (N1,390,000.00) and poultry (N1,780,000.00) project beneficiaries. The reason could be deduced from the prevalence of business during end of year with festivals and ceremonies. The average annual income were aquaculture (N518,666.67) and poultry (N568,166.67) respectively. From the result, it is obvious that poultry farmers made more income than aquaculture farmers. This is a confirmation to a survey report of Ugwumba and Chukwuji (2010) who reported that more farmers made profit in poultry than aquaculture business in Anambra State. Furthermore, a significant higher level of production and income generation rate attracted Oyo State youths into the poultry industry (Adebayo *et al.*, 2018).

Table 6. Respondents' level of income in aquaculture and poultry project (n = 72)

Monthly Income	Aquaculture (N'000)	Poultry (N'000)
January	380	426
February	366	490
March	400	538
April	538	570
May	590	430
June	430	350
July	380	366
August	360	495
September	490	538
October	500	385
November	400	450
December	1,390	1,780
Total	6,224,000.00	6,818,000.00
Average	518,666.67	568,166.67

Source: Field Survey Responses.

### 3.6. Level of satisfaction of agricultural activities in agreement with songhai objectives.

Table 7 below shows the frequency, percentage and means of the respondent on the level of satisfaction of agricultural activities in agreement with Songhai objectives. The result shows that the respondents were all satisfied with the management training of agricultural practices. This shows that majority of the respondents were satisfied with the training at poultry (mean = 3.24) and on aquacultural practices (mean = 3.19) amongst others. The pooled mean of 2.89 shows that the respondents were greatly satisfied with the various agricultural activities at Delta Songhai. However, there was dissatisfaction record with maggotry (mean = 2.25) and feed mill (mean = 2.01) component activities.

Youths are satisfied when brought in as stakeholders into project conceptualization, designs, implementation and ownership (Ajani, Mgbenka and Onah, 2015). This perception is enviable for project sustainability.

Table 7. Respondents’ satisfaction level of agricultural activities in agreement with Songhai objectives (n = 72)

Beneficiaries responses on training in:	Poorly Satisfied (1)	Unsatisfied (2)	Satisfied (3)	Very Satisfied (4)	Mean	Remark
Poultry	0	4	47	21	3.24	Satisfied
Aquaculture	2	5	42	23	3.19	Satisfied
Grasscutter	0	5	55	12	3.09	Satisfied
Piggery	0	5	56	11	3.08	Satisfied
Agro-processing	1	5	55	11	3.05	Satisfied
Snailry	2	8	47	15	3.04	Satisfied
Quail	4	20	43	5	2.68	Satisfied
Maggotry	16	26	26	4	2.25	Not satisfied
Feed mill	23	30	14	5	2.01	Not satisfied
Pooled mean = 2.89						

Source: Field Survey Responses.

### 3.7. Constraints militating against youth implementation of delta songhai programme

Table 8 shows that serious constraints were poor funding from donors (mean = 2.84), fund diversion (mean = 2.76), poor farm monitoring (mean = 2.70), beneficiaries nonchalant attitude (mean = 2.59), poor feeder road situation (mean = 2.59) and shortage of modern technology (mean = 2.56). The unserious constraints were inadequate starter package (mean = 2.47), poor communication system (mean = 2.41), poor publicity (mean = 2.27) and poor marketing (mean = 1.90). Ajani *et al.* (2015) reported that inadequate project funding, poor environmental and infrastructural provisions affects youth in developing interest in agriculture. Moreover, youths participating in backyard farming as a way to generate income complained about the poor monitoring and visits of agricultural extension workers (Ovharhe, Achoja, Okwuokenye. and Joe-James, 2020). The pooled mean for the constraint was at 2.51 it shows that the constraints were not very serious.

Table 8. Respondents’ constraints in programme implementation (n = 72)

Constraints	Not Serious (1)	Unserious (2)	Serious (3)	Very Serious (4)	Mean	Remark
Poor funding from donors	1	20	40	11	2.84	Serious
Fund diversion	2	20	43	7	2.76	Serious
Poor project monitoring	3	29	26	14	2.70	Serious
Beneficiaries nonchalant attitude	4	31	27	10	2.59	Serious
Poor feeder road situation	6	24	35	7	2.59	Serious
Shortage of modern technology.	1	36	28	7	2.56	Serious
Inadequate starter package	4	33	32	3	2.47	Unserious
Poor communication system	12	26	26	8	2.41	Unserious
Poor publicity	14	29	24	5	2.27	Unserious
poor marketing	25	32	12	3	1.90	Unserious
Pooled mean = 2.51						

Source: Field Survey Responses.

### 3.8. Test of hypothesis one

The result of the test of hypothesis is as follows:

H<sub>01</sub>: There is no significant difference between socio economic characteristics and satisfaction level of beneficiaries

The regression result (Table 9) revealed that the entire variables were not significant except farming experience which has a p-value of 0.034 (p<0.05). This result is true as farming experience can have influence on the level of satisfaction The explanatory power of the independent variables (Age, Gender, Marital Status, Educational level, Farm size, Farming Experience, Household size and Extension) indicated by R<sup>2</sup> is 0.172. The R<sup>2</sup> shows that only 17% of variation in level of satisfaction was captured by the explanatory variable and that 83% was left for the error term. This shows low predictive capacity of the model. Surprisingly, youths have some level of farming experience due to child labour abuse, a situation where poor farm households pressurize children into farming activities in attempt to make ends meet. This is socially unethical (Ofuoku, Ovharhe, and Agbamu, 2019).

Table 9. Regression result between socio economic characteristics and satisfaction level of beneficiaries Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	33.820	3.441		9.829	.000
Age	-.025	.083	-.051	-.301	.764
Gender	-.670	.800	-.104	-.837	.405
MaritalS	.117	.501	.037	.233	.817
EduL	.357	.354	.120	1.008	.318
FarmS	.037	.188	.025	.196	.845
FarmingE	-.326	.150	-.312	-2.165	.034*
HouseS	-.224	.203	-.138	-1.103	.274
Extension	-.282	.360	-.096	-.783	.437

\*significant (p<0.05).

### 3.9. Test of hypothesis two

The second hypothesis was tested using Correlation to ascertain the relationship (Table 10). H<sub>02</sub>: There is no significant relationship between income generation level of aquaculture and poultry project beneficiaries.

The correlation coefficient is 0.140 with p-value of 0.414 which is not significant. This coefficient shows that there is a weak relationship between the income generation level of aquaculture and poultry. The implication of this is that the income level of aquaculture is less than of poultry in the study area.

In a various farmers' backyard farms investment survey, it was reported that farmers were satisfied with their poultry business amongst others (Ovharhe et al., 2020).

Table 10. Regression result between income generation level of aquaculture and poultry project beneficiaries

Correlations				
Variables		Aquaculture (Income Generation)	Poultry (Income Generation)	(Income Generation)
Aquaculture (Income Generation)	Pearson Correlation	1	.140	
	Sig. (2-tailed)		.414	
	N	36	36	
Poultry (Income Generation)	Pearson Correlation	.140	1	
	Sig. (2-tailed)	.414		
	N	36	36	

Not significant (p>0.05).

#### 4. Discussion and Conclusion

Based on the finding of this research it is believed that the training programme had a great impact on the youths mostly in poultry, aquaculture, piggery, food processing, grasscutter production and record keeping. It was observed that most of the beneficiaries were males with an average of five years farming experiences. Beneficiaries adopted more poultry innovations than aquaculture as reflected in their income generation report. As indicators of positive empowerment, beneficiaries expressed satisfactory in input supply, skillful training and adequate participation, optimal utilization of technology. The degree of constraints facing the youths in project implementation were not very serious on the average.

The results of this study also showed that majority of the beneficiaries had extension visits twice in a year. This further implies that beneficiaries do not have frequent encounters with extension agents to further familiarize themselves with latest best practices.

The findings from this study led to the following recommendations that:

- i. Donors should introduce project monitoring scheme after participant's graduation. This will ensure programme sustainability.
- ii. Extension workers should endeavor to visit farmers monthly instead of the observed biannual and annual visits. This will help boost their farm productivity by enhancing them to adopt innovative technologies and improved techniques
- iii. More attractive enterprises should be included in the training package to attract more female youths.
- iv. More training for beneficiaries on self-made feed mills for better profitability in livestock production.
- v. Maggot breeding should be adopted by the aquaculture beneficiaries as it is a rich feed diet for fish production.
- vi. Safety tips are usually ignored in agricultural training programmes; as a matter of policy implications, efforts should be made to incorporate safety technology into agricultural training curriculum

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