ISSN : 1412-8837
e-ISSN : 2579-9959
JURNAL AGRISEP
Kajian Masalah Sosial Ekonomi Pertanian dan Agribisnis

DOI: 10.31186/jagrisep.23.01.281-296

ASSESSMENT OF FUMMAN AGRICULTURAL PRODUCTS INDUSTRIES' CONTRACT FARMING SCHEME AMONG PINEAPPLE FRUIT FARMERS IN OYO STATE, NIGERIA

Penilaian Skema Kontrak Pertanian Industri Hasil Pertanian FUMMAN Pada Petani Buah Nanas Di Negara Oyo, Nigeria

Oyedeji Taofeeq Yekinni[1]; Temitope Adejoju Ladigbolu [2]; Ezekiel Olalekan Akanji [3]

[1),2),3)]*Department of Agricultural Extension and Rural Development, Faculty of Agriculture, University of Ibadan, Ibadan, Oyo state, Nigeria*

Email: adejojutemitope@gmail.com

ABSTRACT

This study assessed FUMMAN Agricultural Products Industries Plc. contract farming scheme among pineapple fruit farmers in Oyo State, Nigeria. Data on enterprise characteristics, benefits derived, constraints encountered, and field personnel characteristics were gathered from 105 pineapple fruit farmers. Respondents were sampled using a multistage sampling procedure and an interview schedule was used to elicit information which was analyzed using frequencies, percentages, mean, standard deviation, and Pearson Product Moment Correlation (PPMC) at 0.05. Findings showed that the majority (76.2%) of the pineapple fruit farmers cultivated less than 1 hectare farm size. They derived benefits from access to a stable market ($\bar{x}$=1.94) and reduction of wastage level ($\bar{x}$=1.84), while defaulting in contractual agreements ($\bar{x}$=1.45) and delay in payment ($\bar{x}$=1.38) were major constraints encountered. Integrity ($\bar{x}$=3.29), honesty ($\bar{x}$=3.29), and trustworthiness ($\bar{x}$=3.27) were the major characteristics of field personnel identified. There were significant relationships among farmers' benefit derived (r=0.787), constraints encountered (r=-0.193), and field personnel characteristics' assessment. It is recommended that FUMMAN should endeavor to keep to contractual agreements while ensuring the extension of the contracts through highly rated field personnel.

Keywords: agrifood processing, FUMMAN agricultural products, field personnel characteristics

ABSTRAK

Studi ini mengevaluasi skema pertanian kontrak industry produk pertanian FUMMAN Plc. di antara petani buah nanas di Oyo State, Nigeria. Data tentang karakteristik perusahaan, manfaat yang dihasilkan, keterbatasan yang dihadapi, dan karakteristik staf lapangan dikumpulkan dari 105 petani buah nanas. Responden yang dijadikan sampel menggunakan prosedur sampling multistage dan jadwal wawancara dianalisis menggunakan frekuensi, persentase, rata-rata, penyimpangan standar, dan Korelasi Momental Produk Pearson (PPMC) pada 0.05. Hasil menunjukkan bahwa mayoritas (76,2%) petani buah-buahan kacang menanam kurang dari 1 hektar ukuran peternakan. Mereka memperoleh manfaat dari akses ke pasar yang stabil ($\bar{x}$= 1.94) dan pengurangan tingkat limbah ($\bar{x}$=1.84), sementara default dalam kesepakatan kontraktual ($\bar{x}$=1.45) dan penundaan pembayaran ($\bar{x}$=1.38) adalah keterbatasan utama yang dihadapi. Integritas ($\bar{x}$=3.29), kejujuran ($\bar{x}$=3.29), dan keandalan ($\bar{x}$=3.27) adalah karakteristik utama dari personil lapangan yang diidentifikasi. Ada hubungan yang signifikan antara manfaat petani yang dihasilkan (r = 0,787), keterbatasan yang dihadapi (r= 0,193), dan penilaian karakteristik staf lapangan. Disarankan bahwa FUMMAN harus berusaha untuk mematuhi kesepakatan kontrak sambil memastikan perpanjangan kontrak melalui staf lapangan yang berkualitas tinggi.

Kata Kunci: pengolahan pangan pertanian, produk pertanian fumman, perjanjian kontrak

INTRODUCTION

Efforts to develop the agricultural sector in developing countries are now taking place against the background that major structural changes in the world of agricultural industry are characterized by globalization, market liberalization, and rural infrastructural development for high-value crops and productivity. Hence, a greater number of smallholder farmers in sub-Saharan Africa are participating in the new globalized product supply chain of agricultural goods through contract farming which is a step to transiting subsistence agriculture to commercial agriculture as an intermediate sector between the agricultural and manufacturing sectors (Nazifi & Hussaini, 2021).

Contract farming has been defined as an arrangement that involves production made by farmers under an agreement with buyers to off-take their outputs. This contract will enable small-scale farmers to integrate into modern value chains of agriculture, it will provide farmers with inputs, technical assistance and assured markets. Basically such an arrangement is an established agreement between processing/marketing firms and smallholder farmers for better quality and quantity of production as well as good prices (Odountan et al.,

2020). Contract farming in Africa is mainly promoted by private sector like private companies/individuals with little support from public institution, that is Public-Private Partnerships (PPPs) (Oladapo et al., 2023; Akanbi et al., 2019; Adebisi et al., 2020). According to Yisa et al. (2022) and Barrowclough et al. (2019), many contract farming schemes in less developed countries are multipartite arrangements involving private firms (usually foreign, but occasionally local with examples such as OLAM, BATIAL and Nestle SLAMARK in Nigeria), the host-country government, and international aid or lending agencies, such as the U.S. Agency for International Development (USAID), the World Bank, or the Commonwealth Development Corporation (CDC).

In Nigeria, some of the agribusiness firms or agrifood processing companies that are operating contract farming schemes include British American Tobacco Company (tobacco); Friesland Camprina WAMCO (milk); Thai Farm International Limited (cassava); Erisco Foods Limited (tomatoes); NASCO (maize) and FUMMAN Agricultural Products Industries Plc. (fruits); amongst others. Contract farming under these private companies is all set up to primarily ensure an uninterrupted supply of raw materials for these agribusiness firms either for processing or marketing while ensuring that the participating smallholder farmers gain feasible and sustainable access to profitable long term market.

In the meantime, FUMMAN Agricultural Products Industries Plc., a fruit processing industry, is a major producer of fruit juice in the southwestern Nigeria. The company was established in 1994 through the acquisition of the Lafia canning factory, with the sole aim of processing and marketing wholesome fruits and juices in Nigeria. Over the years, the firm has grown into a multiline facility producing an array of nine variant of fresh fruit juice from pineapple, mango, cashew, oranges, guava, coconut and passion all year round. More than 200 individual contract growers and farmers' cooperatives are now participating in its contract farming schemes, spanning through the southwestern states of Nigeria (FUMMAN, 2023).

It is expected that with such an arrangement, farmers agree to deliver certain quantities of a specific product at the quantified eminence criteria and time, and the buyer might also supply some inputs or hands-on backing to the farmer such as better technology, coordinating producers and consumer's market along with strong grass-root linkages (Adebisi et al., 2020 & Akanbi et al., 2019). The contract farming models usually provide farmers with services like access to credit; extension service, agricultural production inputs; training on good agronomic practices, farm supervision, storage facilities, and readily available markets for harvested crops among other services. This is expected to relieve smallholder farmers' problem of difficulties encountered in accessing credit, obtaining information on new technologies and market opportunities as well as purchasing inputs and accessing product markets among other burdens

faced. This will eventually enable smallholder farmers to boost their productivity, increase incomes, and improve their livelihood status. Meanwhile, it is yet to be ascertained if the attitudinal characteristics of field personnel in charge of contract farming have been investigated especially how it impacts benefits derived by the farmers to improve their livelihood status because the success of the CF scheme is most likely based on them as intermediaries.

Although several studies have been conducted worldwide on contract farming, its' impact on farmers' welfare and its' sustainability. Authorities like Nazifi et al. (2021); Adebisi et al. (2019); Akanbi, et al (2019); Ibrahim & Garba, (2019); Oladapo et al., (2023); Enwelu & Iyere-Freedom, (2023) and Yisa et al., (2022) studied farmers' income from contract farming, the impact of contract farming on national and household food security, factors influencing farmers' decision on contract farming and extent of participation in contract farming as well as perception about contract farming. However, Nigeria's situation is unique and calls for proper investigation especially because the sustainability of an idea or a development program is hinged on the favorable perception of the participants as well as benefits derived by the beneficiaries from such strategy or program. Coupled with the fact that there is a dearth of information as per farmers' benefits, satisfaction, and general positive effects from their engagement in the contract farming scheme.

Hence, it is mandatory to assess the contract farming scheme through attitudinal characteristics of the company personnel, benefits derived, and possible mechanisms put in place for improving the livelihood of rural smallholder farmers among other assessments. It is against this backdrop that this study assessed the contract farming scheme between FUMMAN Agricultural Products Industries Plc. and fruit farmers in Oyo state, Nigeria. The specific objectives raised to guide the study were to identify the enterprise characteristics of the respondents and to determine the level of benefits derived by the respondents. Other specific objectives raised were to describe characteristics of the field personnel of FUMMAN, as well as to ascertain the level of constraints encountered by the respondents.

Hypotheses:

H01: There is no significant relationship between level of benefits derived and farmers' field personnel characteristics assessment.

H02: There is no significant relationship between the constraints encountered and farmers' field personnel characteristics' assessment.

RESEARCH METHOD

The study was carried out in Oyo State. Oyo State is located between the latitude 7° 8´ and 9°10´ in the South-West geopolitical zone of Nigeria. Oyo State was one of the three states carved out of the former Western State of Nigeria in 1976 (National Bureau of Statistics, 2017). Oyo State consists of 33 Local Government Areas. Oyo state covers approximately 28,454 square kilometers and is ranked 14th by size. The main occupation is farming. The climate in the State favors the cultivation of crops like maize, yam, cassava, plantain, cocoa tree, cashew, pineapple, oranges, mango, etc.

The target population of the study consisted of pineapple farmers who are engaged in the contract farming scheme of FUMMAN Agricultural Products Industries Plc. in Oyo state. A multi-stage sampling procedure was used for selecting the sample from the population for the study.

At first, the Ibadan/Ibarapa and Ogbomosho zones were purposively selected among the four Agricultural Development Programme (ADP) zones in Oyo state using a purposive sampling technique. This purposive selection was done since the FUMMAN factories and farms' locations are within the selected zones. For instance, there is a FUMMAN factory in the Apata area of Ibadan while FUMMAN Farms is in the Aja Awa area of Ogbomosho. In the second stage, seven (7) Local Government Areas (LGAs) were also purposively sampled from the selected ADP zones using a purposive sampling technique. This is because of the nearness to the FUMMAN fruit collection /market centers. The third stage involved a random selection of 50% of 28 cluster markets in the selected LGAs using a simple random sampling technique. In total 14 cluster markets were selected. Then a list of registered contract farmers in the selected market clusters was retrieved from FUMMAN personnel. Thereafter, a list of registered contract farmers was retrieved from the FUMMAN office. There are 191 registered contract farmers in all of which 60% were selected using a simple random sampling technique. So in all one hundred and fifteen (115), contract pineapple fruit farmers were selected however, a hundred and five (105) interview schedules that were completed by the respondents were eventually used to analyze this study.

The data on enterprise characteristics, benefits derived from the scheme, constraints encountered in the scheme agreement, and field personnel characteristics were collected using interview schedules. Data collected were analyzed using frequency, percentage, mean, standard deviation, and Pearson Product Moment Correlation (PPMC).

Field personal attitude characteristics were measured by asking the respondents to rate the scheme based on the attitudinal characteristics of the firm's field personnel to the farmers. A list of nine attitudinal characteristics such as fairness to all, trustworthiness, effective service delivery, integrity, honesty, and concern for the wellbeing of farmers were presented to the farmers. While

they were instructed to assess these characteristics using response options of "Excellent", "Good", "Fair" and "Poor". A score of 3 was assigned to the "Excellent" response option, 2 was assigned to "Good", 1 to "Fair" and 0 was assigned to "Poor". The maximum obtained score was 27 and the minimum score was 0. Thereafter, the mean score was determined and used to rank the attributes accordingly. So attitudinal characteristics with the highest mean score ($\bar{x}$=2.30) were ranked first while those with the lowest mean score ($\bar{x}$=0.01) were ranked the least.

Benefits derived from contract farming by the farmers were measured by asking them to indicate the extent to which they benefited from a set of 10 benefit items that they could derive from participating in the scheme. Response options provided were "To a large extent", "To a little extent" and "Never". A score of 2 was assigned to "To a large extent", 1 to "To a little extent" and 0 to "Never". The maximum score obtained was 20 and the minimum was zero. Some of the benefit items are access to a stable market, improved access to production support services, better price offers, increased income, increased profit margins, increased production, access to improved technologies, access to credit, and reduced wastage level. Then mean scores were determined and used to rank the benefits derived. Thereafter, the benefit index was computed, and using the mean as the benchmark, the index was categorized into high and low levels of benefits derived. Those respondents whose scores were between the mean ($\bar{x}$=10.7524) and above were categorized as deriving high benefits while those below the mean were categorized as deriving low benefits from the scheme.

Constraints faced by the farmers while participating in the contract farming scheme were assessed by asking the respondents to indicate how often they face a set of 10 constraints provided while participating in the scheme. Response options provided were "Always", "Occasionally" and "Never". A score of 2 was assigned to "Always", 1 to "Occasionally" and zero to "Never". The list of the provided constraints included administrative hurdles, transportation challenges, complex pricing mechanisms, unrealistic quality specifications, and defaulting in contractual agreements by the firm. The maximum obtained score was 20 and zero was the minimum. Individual mean scores were determined and used to rank the constraints encountered. The level of constraints encountered by respondents was derived by computing the constraint index and with the use of mean ($\bar{x}$=9.9905) the index is categorized into high and low levels of constraints. Those whose scores were between the mean and above were categorized as facing high constraints while those below the mean were categorized as facing low constraints in the scheme.

RESULT AND DISCUSSION

Enterprise Characteristics of Pineapple Fruit Farmers

Table 1. shows that respondents had an average of 1.06 hectares total farm size but a mean pineapple farm size of 0.84 hectares. Although pineapple fruit farmers had an average of 15 years of farming experience, they have been involved in the scheme for 5 years. The Table also observed that the respondents' mean yield of pineapple per season was 17.2 tonnes with an average income per season of the respondents of 501,771.43 Nigerian Naira. Table 2. presents that farmers combined pineapple production with maize (100.0%), cassava (100.0%), vegetables (58.1%), pepper (33.3), tomatoes (28.6), mango (17.1), cocoyam (11.4), yam (11.4) and oil palm (7.6). This can be inferred that pineapple fruit farmers intercropped pineapple with several crops like cassava, maize, vegetables, pepper, tomatoes, mango, cocoyam, yam and oil palm. This is probably to diversify their enterprise for a better quality of life.

Table 1. Distribution of Respondents' Enterprise Characteristics (n=105)

Enterprise Characteristics	Mean
Total farm size	1.06
Farming experience	14.97
Pineapple farm size	0.84
Yield per season	17.20
Years of involvement	5.10
Income per season	501,771.43

Source: Field Survey (2017)

It also implies that pineapple fruit farmers are small-scale farmers because they cultivate small areas of land but are very well experienced in pineapple production. Although they cultivate small hectares of land, they have huge harvests per season and earn more than half a million per year. This could be attributed to their wealth of farming experience coupled with their involvement in the contract scheme. The above is in agreement with the findings of Suhaimi, et al. (2022); Enibe & Raphael (2020); Nahar et al. (2020); which confirm that pineapple farmers in Edo State, Nigeria as well as in Malaysia are small-scale producers, long years of farming experience and high yield per hectare.

Table 2. Distribution of Respondents' Combination of Crops (n=105)

Crop Combination	Frequency	Percentage
Pineapple with maize	105*	100.0
Pineapple with cassava	105*	100.0
Pineapple with mango	18*	17.1
Pineapple with oil palm	8*	7.6
Pineapple with cocoyam	12*	11.4
Pineapple with yam	12*	11.4
Pineapple with tomatoes	30*	28.6
Pineapple with pepper	35*	33.3
Pineapple with vegetables	61*	58.1

Source: Field Survey (2017) (* = Multiple response)

Level of Benefits Derived by Pineapple Farmers from FUMMAN Contract Farming Scheme

Table 3. reveals that respondents to a large extent derived benefits from access to stable market ($\bar{x}$=1.94), reduction of wastage level ($\bar{x}$=1.84), better price offer ($\bar{x}$=1.53), increased income ($\bar{x}$=1.51), increased profit margins ($\bar{x}$=1.46) and increased production ($\bar{x}$=1.34), improved access to production support services ($\bar{x}$=0.50) and stable price ($\bar{x}$=0.31). As these benefits were ranked first to eighth, The Table also shows that the majority (55.2%) of the respondents had a high level of benefits derived from participating in the contract scheme with a mean score of 10.75±2.72. The implication is that there are several benefits to participating in contract farming and the study of Sharma et al. (2020) supported the submission.

However, the farmers never benefited from access to improved technologies ($\bar{x}$=0.30) and access to credit $\bar{x}$=0.03). This implies that the FUMMAN contract farming scheme could be said to be beneficial to the farmers and this is in tandem with the findings of Yisa et al. (2022) that contract farming improved the livelihood status of rice farmers in Benue state in Nigeria. It can also be inferred that contract farming in the study area primarily serves a market linkage purpose. This is because every item that the respondents derived benefits from was market-related and price (access to a stable market, reduction of wastage level, better price offer, increased income, and increased profit margins). It is however worrisome that respondents did not derive benefits from access to improved technologies and access to credit benefits items which could boost production and improve their livelihood. That is because the contract signed by the farmers did not stipulate provisions of the duo. Especially as Dewi et al. (2022) discovered that to boost and support pineapple production, farmers must be provided with and encouraged to use simple farm technologies, provided with credit facilities, encouraged to form farmer groups and provided with

extension activities or training by the government or other supporting agencies in pineapple production.

Table 3. Distribution of Respondents Based On Level of Benefits Derived From FUMMAN Contract Farming Scheme (n=105)

Benefit Derived	Large extent	Little extent	Never	Mean	Rank
Access to stable market	94.3	5.7	0.0	1.94	1st
Reduced wastage level	83.8	16.2	0.0	1.84	2nd
Better price offer	54.3	44.8	1.0	1.53	3rd
Increased income	51.4	47.6	1.0	1.51	4th
Increased profit margins	46.7	52.4	1.0	1.46	5th
Increased production	38.1	58.1	3.8	1.34	6th
Improved access to production support services	1.0	47.6	51.4	0.50	7th
Stable price	10.5	10.5	79.0	0.31	8th
Access to improved technologies	1.0	27.6	71.4	0.30	9th
Access to credit	0.0	2.9	97.1	0.03	10th

Benefits level	Range	Frequency	%
Low	4 – 10.7523	47	44.8
High	10.7524 – 17	58	55.2
Total		105	100
Mean	10.7524		
Standard Deviation	2.72376		
Minimum	4		
Maximum	17		

Source: Field Survey (2017)

Attitudinal Characteristics of FUMMAN Personnel

Table 4. reveals that respondents adjudged that FUMMAN personnel's integrity ($\bar{x}$=2.30), honesty ($\bar{x}$=2.30), trustworthiness ($\bar{x}$=2.28), fairness to all ($\bar{x}$=1.91) ,and reliability ($\bar{x}$=1.76), concern for the wellbeing of farmers ($\bar{x}$=1.74) and effective service delivery ($\bar{x}$=1.55) were excellent. The implication is that respondents believed that FUMMAN field personnel have integrity, they are honest, reliable, trustworthy and fair to all.

It is very important to assess FUMMAN field personal attitude characteristics because the personnel are the intermediaries between the farmers and the company. Good characters portray by the field personnel will be of double benefits; one, for the company and the other for the famers. For example, a high level of benefits and low level of constraints experienced by the participating farmers is an indication that there was a good rapport between the personnel and the farmers and in the long run, the company will get best

quantity and quality of produce desired. It is evident from the studies of Buhari, & Yusuf (2022); Buragohain & Dubey, (2021); Adebisi et al. (2020); Michler & Wu (2020); Hidayah & Fazleen (2019) that extension activities on contract farming by the contractor firms may not require formal education to develop favourable or unfavourable attitude towards contract farming but good relations with the farmers. Most especially because there is always a need for clarification in order to provide adequate answers to the information gap and unequal bargaining power.

Meanwhile, pineapple fruit farmers were almost silent about their judgment on field personnel' competence ($\bar{x}$=0.02) and timeliness ($\bar{x}$=0.01) attitudinal characteristics. The duo were ranked least, this means that field personnel should not be assessed on their competency and timeliness probably because farmers do not have ability or capacity required to judge them because as they are not expert in that field.

Table 4. Distribution of Respondents Based on Assessment of The Characteristics of The Field Personnel of FUMMAN Contract Farming Scheme (N=105)

Personnel Characteristics	Excellent	Good	Fair	Poor	Mean	Rank
Integrity	36.2	57.1	6.7	0.0	2.30	1st
Honesty	36.2	57.1	6.7	0.0	2.30	1st
Trustworthiness	34.3	59.0	6.7	0.0	2.28	3rd
Fairness to all	10.5	70.5	18.1	1.0	1.91	4th
Reliability	9.5	59.0	29.5	1.9	1.76	5th
Concern for the wellbeing of farmers	7.6	60.0	31.4	1.0	1.74	6th
Effective service delivery	3.8	53.3	37.1	5.7	1.55	7th
Competence	0.0	0.0	1.0	0.0	0.02	8th
Timeliness	0.0	0.0	0.0	1.0	0.01	9th

Source: Field Survey (2017)

Level of Constraints Encountered by Pineapple Fruit Farmers in FUMMAN Contract Farming Scheme

Table 5. indicates that defaulting in contractual agreement by the company ($\bar{x}$=1.45), delay in payment ($\bar{x}$=1.38), transportation challenges ($\bar{x}$=1.10), administrative hurdles ($\bar{x}$=0.97), and complex bureaucracy of the company ($\bar{x}$=0.94) were the major constraints that the farmers always encounter while participating in the FUMMAN contract farming scheme as these were ranked highest among other constraints faced. The implication is that pineapple fruit

farmers were faced with several challenges while participating in the scheme. Defaulting in contractual agreements by the company, delays in payment, transportation challenges, administrative hurdles, and complex bureaucracy of the company were among the identified challenges.

These constraints are similar to that of Yisa et al. (2022); Enibe & Raphael, (2020); & Nahar et al. (2020) findings, that pineapple farmers encountered transportation challenges and a lack of access to loans. Although the level of constraints encountered is low, this does not equate to no constraints at all. It should be noted that defaulting in the contractual agreement by the company, delay in payment of farmers, and transportation challenges if not checked could endanger farmers' participation in the scheme and reduce to a greater amount of benefits that the farmers garnered from the scheme.

Table 5. Distribution of Respondents Based on Level of Constraints Encountered in FUMMAN Contract Farming Scheme (n=105)

Constraint Encountered	Always	Occasionally	Never	Mean	Rank
Defaulting in the contractual agreement	48.6	42.9	8.6	1.45	1st
Delay in payment	46.7	44.8	8.6	1.38	2nd
Transportation challenges	40.0	29.5	30.5	1.10	3rd
Administrative hurdles	6.7	83.8	9.5	0.97	4th
Complex bureaucracy	5.7	82.9	11.4	0.94	5th
Complex pricing mechanism	1.9	32.4	65.7	0.36	6th
Inadequate/lack of planting materials	3.8	12.4	83.8	0.35	7th
Unrealistic quality specification	2.9	28.6	68.6	0.34	8th
Pests/diseases	0.0	12.4	87.6	0.12	9th
Wastages/damages	1.0	0.0	99.0	0.02	10th
Constraints level		Range	Frequency		%
Low		1 – 9.9904	53		50.5
High		9.9905 – 28	52		49.5
Total			105		100
Mean		9.9905			
Standard Deviation		5.92013			
Minimum		1			

Source: Field Survey, (2017)

Other major constraints encountered that limited their participation were complex bureaucracy (0.94), complex pricing mechanism (0.36), inadequate/lack

of planting materials (0.35), unrealisticquality specification (0.34), pests/diseases (0.12) and Wastages/damages (0.02). The Table further shows that a greater proportion (50.5%) of the farmers faced overall low constraints while participating in the FUMMAN contract farming scheme in the study area

Hypotheses Testing

Table 6. reveals that there were significant relationships among farmers' benefit derived (r=0.787, p=0.000), constraints encountered (r=-0.193, p=0.049), and field personnel characteristics' assessment.

This implies that farmers' benefits derived significantly affected respondents' assessment of field personal attitude characteristics. This could be that with good attitudinal characteristics of the FUMMAN field personnel, the farmers were able to fully enjoy benefits from the contract scheme or that those farmers that greatly derived benefits from the scheme rated field personnel well. This is supported by the findings of Barrowclough et al. (2019). While, the negative relationship between constraints encountered by the respondents and their assessment of attitudinal characteristics of the FUMMAN field personnel was because respondents that experienced more constraint while participating in the contract scheme rated attitudinal characteristics of the FUMMAN field personnel low.

Table 6. PPMC Test of Relationship Analysis Among Benefits Derived, Constraints Encountered and Assessment of Attitudinal Characteristics of FUMMAN Field Personnel.

Variable	r-value	p-value
Benefits derived index*Attitudinal assessment index	0.787	0.000
Constraints encountered index* Attitudinal assessment index	-0.193	0.049

Source: Field Survey, (2017)

CONCLUSION AND SUGGESTION

Conclusion

Pineapple fruit farmers that benefited from the FUMMAN contract farming scheme are small-scale farmers, they intercropped pineapple with other crops and have been involved in the FUMMAN contract farming scheme for 5 years. Pineapple farmers adjudged FUMMAN field personnel honest and trustworthy with good integrity. They have market linkage opportunities, better price offers, and increased income. However, defaulting in contractual

agreements, delays in payment, and transportation challenges were encountered.

Suggestion

It was recommended that contract farming scheme is key hence, should be continued and sustained since farmers benefited from the scheme. Sustainability can be achieved by reducing the index of constraint encountered and increasing the arrays of benefits derivable from the scheme by FUMMAN Company.

Also, FUMMAN and other companies that may want to be involved in contract farming should endeavor to always keep to contractual agreement terms such as prompt payment of the participating farmers. The company or intended companies that may want to be involved in contract farming should develop a better logistics system for effective and efficient transportation of the fruits from the farm gate in order to avoid fruit deterioration leading to wastage.

The contracting farmers should be encouraged to form agricultural organizations like cooperatives aside the cluster market in order to facilitate better access to credit facilities by lending institutions.

Lastly, it was recommended that the company or intended companies that may want to involve in contract farming should give more attention to research and development whereby improved technologies generated in pineapple production can be extended to the contracting farmers through their highly rated field personnel.

REFERENCES

Adebisi, L. O., et al. (2019). Effect Of Contract Farming On Poultry Farming Households' Food Security In Osun State, Nigeria. *Journal of Tropical Agriculture, Food, Environment and Extension*, 18(1), 45-49. Retrieved from https://www.researchgate.net/publication/331358688_Effect_of_contract_farming_on_poultry_farming_households_food_security_in_Osun_state_Nigeria

Adebisi, L., et al. (2020). Economic Analysis Of Contract Farming And Technical Efficiency Of Broiler Farmers. *Cercetan Agronomice In Maldova*, 4 (184), 426-433. doi: 10.46909/cerce-2020-036

Akanbi, S. O., Alarape, W. I., & Olatunji, S. O. (2019). Economic Implication Of Contract Farming On Small-Scale Rice Farmers In Kwara State, Nigeria. *Agrosearch*, 19(2), 26–40. doi: 10.4314/agrosh.v19i2.3

Barrowclough, M., Boys, K. A., & Carpio, C. (2019). Benefits, Challenges And Trade-Offs: Buyer And Contract Characteristics Valued By Small Farm Suppliers To Wholesale Marketing Channels. *Journal Of Agricultural And Resource Economics*, 44(3), 605–623. doi: 10.22004/ag.econ.292334

Buhari, N., & Yusuf, I. H. (2022). Determinants Of Participation In Contract Farming Among Smallholder Maize Farmers In North-Western Nigeria. *Acta Sci. Pol. Agricultura*, 20(4), 147–160. doi: 10.37660/aspagr.2021.20.4.2

Buragohain, D., & Dubey, J. P. (2021). Contract Farming: Status And Effect On Socio-Economic, Psychological And Social Characteristics Of Farmers In Assam. *Journal Of Community Mobilization And Sustainable Development*, 16(1), 105-111. https://www.JournalofMobilizationVol.161January-April2021book9.4.20212%20.pdf

Dewi, I. S., Darus, & Prasetyo, B. (2022). Strategi Pengembangan Usahatani Nenas Di Kecamatan Tambang Kabupaten Kampar. *Jurnal Agribisnis*, 24(1), 90-102. Retrieved from https://www.researchgate.net/publication/368561624_STRATEGI_PENGEMBANGAN_USAHATANI_NENAS_DI_KECAMATAN_TAMBANG_KABUPATEN_KAMPAR

Enibe, D. O., & Raphael, C. J., (2020). Economics Of Pineapple Production In Awgu Local Government Area Of Enugu State, Nigeria. *Journal Of Agricultural And Crop Research*, 8(11), 245-252. doi: 10.33495/jacr_v8i11.20.133

Enwelu, I. A., & Iyere-Freedom, C. J. (2023). Effects Of Contract Farming Models For Increased Productivity In Nigeria: An Empirical Evidence. *Nigerian Agricultural Journal*, 54(1), 420-424. Retrieved from http://www.ajol.info/index.php/naj https://www.naj.asn.org.ng

FUMMAN. (2023). *FUMMAN Agricultural Products Industries Plc*. Retrieved from https://1645-ng.all.biz/info-about

Hidayah, N. M. S., & Fazleen, A. F. (2019). Profitability Of Pineapple Production (Ananascomosus) Among Smallholders In Malaysia. *International Journal Of Recent Technology And Engineering*, 8(4), 1-12. doi: 10.35940/ijrte.D7780.118419

Ibrahim, H. Y., & Garba, S. U. (2019). Impact Of Smallholder Farmers' Participation In Contract Farming On Food And Nutrition Security Outcomes In North Western Nigeria. *Agriculture, Nutrition and Health Academy Week*, 23-28. Retrieved from https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.anh-academy.org/sites/default/files/6A_Hussaini%2520Yusuf%2520Ibrahim%2520ANH2019%2520%25281%2529.pdf&ved=2ahUKEwi89eWk8ZOFAxVYzjgGHdSVAqcQFnoECBUQAQ&usg=AOvVaw216AU-vK5JltYTE9lbcTUj

Michler, J. D., & Wu, S. Y. (2020). Relational Contracts In Agriculture: Theory And Evidence. *Annual Review Of Resource Economics*, 12, 111-127. doi: 10.1146/annurev-resource-101719-034514

Nahar, A., et al. (2020). Challenges In Marketing Channel Selection By Smallholder Pineapple Growers In Samarahan, Sarawak, Malaysia. *Food Research*, 4(5), 77–85. Retrieved from http://www.myfoodresearch.com

National Bureau of Statistics (NBS). (2017). *The Nigerian Population Census*. Tambukareli: Demographic Statistics Bulletin

Nazifi, B., & Hussaini, Y. I. (2021). Determinants Of Participation In Contract Farming Among Smallholder Maize Farmers In North-Western Nigeria. *Acta Sci. Pol. Agricultura*, 20(4), 147–160. doi: 10.37660/aspagr.2021.20.4.2

Nazifi, B., et al. (2021). Impact Of Contract Farming On Productivity And Food Security Status Of Smallholder Maize Farmer's Households In Kano And Kaduna States, Nigeria. *International Journal Of Agriculture, Environment And Food Sciences*, 5(4), 571-579. doi: 10.31015/jaefs.2021.4.17

Odountan, A. O., et al. (2020). Impact Of Participation In Contract Farming On Smallholder Farmers' Income And Food Security In Rural Benin: PSM And LATE Parameter Combined. *Sustainability*, 12(3), 1-19. doi: 10.3390/su12030901

Oladapo, M. O., et al. (2023). Sustainable Technology Adoption As A Source Of Competitive Advantage For Pineapple Production In Ejigbo, Nigeria. *Economies*, 11(222), 1-29. doi: 10.3390/economies11090222

Sharma, P., et al. (2020). Attitude Of Paddy Growers Towards Contract Farming In Jammu Region Of J&K State. *Journal Of Pharmacognosy And Phytochemistry*, 9(1), 1350-1353. Retrieved from https://www.phytojournal.com/archives/2020/vol9issue1/PartW/9-1-65-577.pdf

Suhaimi, N. H., et al. (2022) Determinants Of Agricultural Competitiveness: The Case Of Pineapple Production Among Smallholders In Johor, Malaysia. *Food Research*, 6(1), 101–111. doi: 10.26656/fr.2017.6(S1).003

Yisa, K, M., et al. (2022) Analysis of Wellbeing Status of Contract Rice Farmers in Niger State of Nigeria. *Journal of Agriculture and Food Sciences*, 20(1), 179–190. doi: 10.4314/jafs.v20i1.14

Yisa, K, M., et al. (2022). Analysis Of Rice Farmers' Participation In Contract Farming In Benue State Of Nigeria. *African Scholar Journal Of Biotechnology And Agricultural Research*, 24(1), 119-131. Retrieved from https://www.africanscholarpublications.com/wp-content/uploads/2022/05/AJBAR_Vol24_No1_March_2022-9.pdf

Yisa, K, M., et al. (2022). Livelihood Status Of Rice Contract Farmers In Benue State Of Nigeria. *Fudma Journal Of Agriculture And Agricultural Technology*, 8(1), 364-371. doi: 10.33003/jaat.2022.0801.104