



EFFECTIVENESS OF THE PLANTING FOR FOOD AND JOBS PROGRAMME ON FOOD SECURITY IN KASSENA NANKANA MUNICIPAL

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ABSTRACT

Purpose of the Study: To explore the effectiveness of the Planting for Food and Jobs (PFJ) initiative on food security in Kassena Nankana Municipal, introduced by Ghana in 2017 to ensure self-sufficiency, provide employment opportunities, and raise awareness of the importance of farming.

Statement of the Problem: The PFJ initiative was launched to address significant challenges in Ghana's agricultural sector, aiming to boost food security and reduce poverty. Despite its benefits, the PFJ program faces several implementation challenges, such as uneven distribution of input points, inadequate seeds and fertilizers due to smuggling, erratic rainfall, political interference, and logistical issues.

Methodology: The study adopted a descriptive research design using a mixed-methods approach. Quantitative and qualitative data were collected through questionnaires, interviews, and focus group discussions. Simple random sampling selected farmers, while purposive sampling targeted key informants. Data were analyzed using SPSS v20 and presented through percentages, charts, and tables.

Findings: The study revealed that farmers are somewhat aware of the PFJ packages, with significant participation from all major stakeholders. The number of Agricultural Extension Agents, including NABCOs, increased significantly. The municipality became food-secure due to the PFJ program, which also significantly improved food security, reduced unemployment, and alleviated poverty. However, challenges such as uneven input distribution, inadequate seeds and fertilizers, erratic rainfall, political interference, and logistical issues were identified as impediments to the program's success.

Recommendations: To address these challenges, a holistic and multidimensional approach is needed. This includes ensuring even distribution of input points, minimizing political interference, fostering an evaluation culture, increasing investments in the agricultural sector, enhancing inter-sector cooperation and collaboration, improving access to affordable financing for Farmer-Based Organizations (FBOs), and developing a robust administrative statistics system to track progress and outcomes effectively.

Keywords: *Planting for Food and Jobs, Exploration, Effectiveness, Food Security, Agricultural Extension Agents.*

INTRODUCTION

Despite agriculture's significant contribution to employment and livelihoods in Ghana, its share of the Gross Domestic Product (GDP) has been declining, falling from 31.8% in 2009 to 20.2% in 2015 [11]. With the population expected to exceed 31 million by 2021, increasing crop production, particularly food crops, is crucial to addressing food insecurity. However, the agricultural sector faces several challenges, including low accessibility and inadequate use of certified seeds, insufficient nutrient fertilizer application, lack of extension services, weak linkages between producers and markets, and limited use of Information and Communication Technology [14]. In response, the Ministry of Food and Agriculture launched the Planting for Food and Jobs (PFJ) program, a flagship initiative aimed at modernizing agriculture to address these challenges and help achieve Sustainable Development Goal 2, which targets ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture [14].

This study explored the effectiveness of the PFJ program on food security in Kassena Nankana Municipal. It aimed to assess stakeholders' understanding and awareness of the PFJ packages, evaluate participation in the program's pillars, determine the PFJ's impact on food security, and identify challenges hindering the program's implementation. The findings revealed that, while the PFJ has made significant strides in improving food security, reducing unemployment, and alleviating poverty, it faces challenges such as uneven distribution of input points, inadequacy of seeds and fertilizers due to smuggling and resale, erratic rainfall, political interference, late supply, and high cost of inputs, inadequate logistics for extension services, lack of appreciation for the E-Extension module, shortfalls in funding, and low women's participation. To overcome these obstacles, the study recommends a holistic and multidimensional approach, including even distribution of input points, limited political interference, fostering an evaluation culture, increasing agricultural investments, enhancing inter-sector cooperation, improving access to financing for Farmer-Based Organizations (FBOs), and developing a robust administrative statistics system

Statement of the Problem

Farming provides livelihoods for millions in Ghana by offering work and food, yet despite past policy interventions, the agricultural sector's role in reducing food insecurity remains inadequate (Plan, 2017). Agriculture's contribution to GDP has been uneven in recent years (Kwarase, 2017, pp. 15-19). Cereal food crops like rice, sorghum, and maize present a wide

yield gap due to poor agronomic practices, low-quality inputs, and lack of extension services (ISSER, 2017; Plan, 2017). Food security issues have significant implications, particularly in developing countries, where 805 million people do not have enough food, with 791 million residing in these regions, including Ghana (UN FAO, World Food Programme, World Bank). Hunger causes more deaths annually than AIDS, malaria, and TB combined (World Food Programme, 2017). In Ghana, 23.4% live in poverty, with 1.2 million children in households unable to provide adequate food (Ghana Statistical Service, 2017; UNICEF, 2016). Nearly 870 million people worldwide are chronically food-insecure, leading to severe crises (FAO, 2012, as cited in Ene-Obong et al., 2019, pp. 496-505). Food insecurity in Ghana reflects its poverty situation, particularly in drier regions (Hesselberg & Yaro, 2006). Despite the potential benefits of agricultural policies like the Planting for Food and Jobs Programme, their impact on vulnerable communities is not well understood, highlighting the need to assess their effectiveness (Quaye, 2008).

Research Objectives

The main objective of this study is to assess the effectiveness of the Planting for Food and Jobs (PFJ) on food security in Kassena-Nankana Municipal. Specific objectives of the research include the:

1. Assessment of stakeholders' understanding and awareness of the packages under the PFJ programme.
2. Assessment of the participation in the Pillars of PFJ Programme.
3. Determination of the impact of PFJ on food security.
4. Determination of the challenges hindering the implementation of the PFJ Programme.

Research Questions

To be able to fully understand and assess the effectiveness of the Planting for Food and Jobs (PFJ) to food security in Kassena-Nankana Municipal, the following research questions were identified.

1. What is the level of stakeholders' understanding and awareness of the packages under the PFJ Programme?
2. What is the level of participation in the Pillars of PFJ Programme?
3. What is the impact of PFJ on food security in the municipality?
4. What are the challenges that hinder the implementation of the PFJ Programme?
5. What can be done to ensure the successful implementation of the PFJ Programme?

LITERATURE REVIEW

Previous Agricultural Policies in Ghana

Increasing agricultural sector production, reducing food insecurity, and growing the incomes of farmers remain high on the agenda of governments of the world. In Ghana, some critical policies and programs have been implemented to boost the agricultural economy. These policies are the Food and Agricultural Sector Development Policy (FASDEP) I & II, the Medium-term Agricultural Sector Investment Plan (METASIP), and the Block Farm Credit Program [14].

Planting for Food and Jobs Program (PFJ)

In Ghana, the food crops subsector is dominated by smallholder farmers whose cropping practices are characterized by inadequate use of productivity-enhancing technologies, low use of quality seeds and fertilizers, and weak market linkages. These collectively hinder growths in farm productivity. In response, the Government through the Ministry of Food and Agriculture (MOFA) initiated the first flagship module i.e., “Planting for Food and Jobs (PFJ)” campaign in 2017 [14].

According to the Ministry of Food and Agriculture [14], the goal of the program is to modernize the agriculture sector of the economy to: Improve food security, create employment opportunities, and Reduce poverty. The primary objective of the PFJ program is to directly motivate farmers to increase their crop productivity and incomes through access to both input and output markets.

According to the Ministry of Food and Agriculture [14], the PFJ program covers five pillars, namely: Provision of subsidized and improved seeds, subsidized fertilizer, agricultural extension services, the establishment of markets, and E-agriculture. These pillars are expected to increase agricultural yields (maize by 30%, rice by 49%, soybean by 25%, and sorghum by 28% [13].

Concept of Food Security

Food and Agriculture Organization (2012) as cited in Ene-Obong, et al., [5], indicates that food security is most commonly defined in terms of the three pillars of availability (including consistency of that availability), access (with the specification of not just access to food, but access to sufficient food for a nutritious diet), and use. Food and Agriculture Organization

(2007) as cited in Ene-Obong, et al., [5], adds a fourth pillar, that of stability, and applies it to all three of the others i.e., the stability of availability, access, and of use.

Determinants of Food Security

According to World Bank (2001) as cited in Zhou, et al., [2019], recognized three significant factors which affect food security i.e., availability of food, accessibility of food, and utilization of food. Availability of food means ample food available through personal production. Doppler [4] stated that accessibility of food means a poverty reduction, merely the availability is not enough, and the poor household should have the ability to purchase it. Utilization of food means food having all the required nutrients in it.

RESEARCH METHODOLOGY

The study was conducted in Kassena Nankana Municipality, one of the fifteen districts in the Upper East Region of Ghana, located between latitude 10.8940° N and longitude 1.0921° W, comprising six zonal councils: Navrongo, Doba, Manyoro, Pungu, Kologo, and Naaga [KNMA MTDP, 2021]. According to the 2021 Population and Housing Census, the municipality has a population of 99,895 people [GSS PHC Report, 2021]. Employing a descriptive research design, the study utilized a mixed research approach, combining quantitative and qualitative methods, to explore the impact of the Planting for Food and Jobs (PFJ) program on food security. Data were gathered from primary and secondary sources, with simple random sampling used to select farming communities and farmers, and purposive sampling used for key informant interviews and focus group discussions. Data collection instruments included questionnaires, interviews, and focus group discussions. Data were processed using IBM SPSS software version 20 and analyzed using descriptive and inferential statistics, with results presented through percentages, graphs, charts, and other tabulations.

RESULTS AND DISCUSSION

Based on the stated objectives of the study, the main findings of the study were as follows.

Assessment of stakeholders' understanding and awareness of the packages under the PFJ program in Ghana

Awareness of the Packages under the PFJ Program

To assess stakeholders' understanding and awareness of the packages under the PFJ's program, a Likert scale of 1-4 was used (i.e., where 1 - Not Aware, 2 - Somehow Aware, 3 - Aware, and 4 - Highly Aware). Results of the study revealed that farmers were not aware of the E-

Agriculture package (Mean = 1.716), farmers were not aware of the Marketing package (Mean = 1.66005), and Marketing is 2.50, 1.72, and 1.67 respectively. It is clear farmers were somehow aware of the Agricultural Extension Services package (Mean = 2.5000), farmers were aware of the Subsidized fertilizer package (Mean = 3.5600), and farmers were aware of the Subsidized and improved seeds package (Mean = 3.3000).

From the results, Subsidized fertilizer recorded the highest score (3.56) followed by Subsidized and improved seeds (3.30). This confirms the percentage of respondents who are aware of the fertilizer and seed packages. Also, the awareness levels of Agricultural Extension Services, E-agriculture, and Marketing are 2.50, 1.72, and 1.67 respectively. It is clear from these scores that Marketing has the lowest level of awareness, followed by E-Agriculture and Agricultural Extension Services.

Table 1: Awareness of PFJ Program Packages

Variable	Frequency	Mean	Std. Deviation	Level of Awareness
E-Agriculture	300	1.7167	1.14342	Not Aware
Marketing	300	1.6600	1.06215	Not Aware
Agricultural Extension Services	300	2.5000	1.32509	Somehow Aware
Subsidized fertilizer	300	3.5600	.78002	Aware
Subsidized and improved seeds	300	3.3000	1.00667	Aware

The study revealed that, on average, farmers are somehow aware of the packages of PFJ. This is not a good indication for PFJ to achieve its intended goals and objectives. The study revealed that farmers were aware of subsidized and improved seeds, fertilizer subsidies, and agricultural extension services packages.

Differences in farmers' levels of awareness of packages of pillars of the PFJ Program

The study on the effectiveness of the Planting for Food and Jobs (PFJ) Programme on food security in Kassena Nankana Municipal used a paired t-test to examine differences in the level of awareness between the program's five pillars. Significant differences in awareness were found between E-Agriculture and Agricultural Extension Services, Subsidized Fertilizer, and Subsidized and Improved Seeds, with no significant difference between E-Agriculture and Marketing. Additionally, there were significant differences between Marketing and Agricultural Extension Services, Subsidized Fertilizer, and Subsidized and Improved Seeds. The study also found significant differences between Agricultural Extension Services and both

Subsidized Fertilizer and Subsidized and Improved Seeds. Overall, the level of awareness among farmers varied significantly between the packages of any two pillars of the PFJ Program, leading to the rejection of the null hypothesis in favor of the alternate, indicating significant differences in awareness levels among the program's pillars.

Table 2: Differences in farmers' levels of awareness of the packages under the PFJ Program

Variable		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)
					Lower	Upper			
E-Agriculture Marketing	–	.05667	1.83977	.10622	-.15236	.26570	.533	299	.594
E-Agriculture Agricultural Extension Services	–	-.78333	.95188	.05496	-.89148	-.67518	-14.254	299	.000
E-Agriculture Subsidized and Improved Seeds	–	-	1.14634	.06618	-1.71358	-1.45309	-23.923	299	.000
E-Agriculture Subsidized Fertilizer	–	-	1.13272	.06540	-1.97203	-1.71463	-28.186	299	.000
Marketing	–	1.84333	2.20695	.12742	-1.09075	-.58925	-6.592	299	.000
Agricultural Extension Services	–	-.84000	2.20695	.12742	-1.09075	-.58925	-6.592	299	.000
Marketing Subsidized and Improved Seeds	–	-	2.03573	.11753	-1.87130	-1.40870	-13.954	299	.000
Marketing Subsidized Fertilizer	–	-	1.81687	.10490	-2.10643	-1.69357	-18.113	299	.000
Agricultural Extension Services – seeds	–	1.90000	.81376	.04698	-.89246	-.70754	-17.028	299	.000
Agricultural Extension Services – Subsidized Fertilizer	–	-.80000	1.01974	.05887	-1.17586	-.94414	-18.004	299	.000
Subsidized and Improved Seeds – Subsidized Fertilizer	–	1.06000	.43937	.02537	-.30992	-.21008	-10.250	299	.000

Correlations of Farmers' Level of Awareness of the PFJ Program

The Spearman's rank correlation coefficients were used to determine the degree of correlation between farmers' levels of awareness of packages of any two pillars.

Table 3: Correlations of Farmers' Level of Awareness of the Packages under the PFJ Program

Variable	E-Agriculture	Marketing	Agricultural Extension Services	Subsidized fertilizer	Subsidized and improved seeds
E-Agriculture	1				
Marketing	-0.439	1			
Agricultural Extension Services	0.798	-0.726	1		
Subsidized fertilizer	0.430	-0.983	0.713	1	
Subsidized and improved seeds	0.525	-0.891	0.870	0.876	1

The study found strong positive correlations between the levels of awareness of various pillars of the Planting for Food and Jobs (PFJ) Programme, specifically between Agricultural Extension Services and E-Agriculture, Subsidized and Improved Seeds and Agricultural Extension Services, Subsidized Fertilizer and Agricultural Extension Services, and Subsidized and Improved Seeds and Subsidized Fertilizer, indicating that an increase in awareness of one pillar corresponds with an increase in the other. Intermediate positive correlations were observed between Subsidized Fertilizer and E-Agriculture, and Subsidized and Improved Seeds and E-Agriculture, showing smaller increases in awareness. Conversely, intermediate negative correlations were found between Marketing and E-Agriculture, and Agricultural Extension Services and Marketing, suggesting that as awareness of one pillar increases, the awareness of the other slightly decreases. Strong negative correlations were observed between Subsidized Fertilizer and Marketing, and Subsidized and Improved Seeds and Marketing, indicating that higher awareness of one pillar significantly decreases awareness of the other.

Assessment of Participation in Pillars of the PFJ Program

The second objective was on the assessment of participation in pillars of the PFJ program

Level of participation of farmers in the pillars of the PFJ Program

In terms of the E-Agriculture pillar, 5% fully participated, 5% partially participated and 90% did not participate. In terms of the marketing pillar, 10% fully participated, 10% partially participated and 80% did not participate.

In terms of Agricultural Extension Services, 30% fully participated, 45% partially participated and 25% did not participate. In terms of the subsidized fertilizer pillar, 80% fully participated,

15% partially participated and 5% did not participate. In terms of the subsidized fertilizer, 50% fully participated, 30% partially participated and 20% did not participate.

Table 4: Level of Participation of Farmers in The Pillars of The PFJ Program

Variable	Fully Participated		Partially Participated		Did not Participate	
	Frequency	%	Frequency	%	Frequency	%
E-Agriculture	15	5	15	5	270	90
Marketing	30	10	30	10	240	80
Agricultural Extension Services	90	30	135	45	75	25
Subsidized Fertilizer	240	80	45	15	15	5
Subsidized and Improved Seeds	150	50	90	30	60	20

The study revealed that the majority of respondents participated fully in the subsidized and improved seeds and subsidized fertilizer pillars of the PFJ. The study revealed that the majority of respondents partially participated in the Agricultural Extension Services pillars of the PFJ. The study revealed that the majority of respondents did not participate in the E-Agriculture and Marketing pillars of the PFJ.

Participation of major stakeholders in pillars of PFJ

The results show that all the farmers participated in the fertilizer pillar of PFJ. This is probably because farmers practically engage in farming and thus require inputs such as fertilizer for production. As expected, 100% of AEAs participated in agricultural extension service delivery. AEAs were those engaged to implement the policy and it is not surprising to have realized their 100% participation in agricultural extension delivery. Out of 48 AEAs, 70% participated in the distribution and allocation of fertilizer to farmers.

Table 5: Participation of major stakeholders in pillars of the PFJ Program

Response	E-Agriculture	Marketing	Agricultural Extension Services	Subsidized fertilizer	Subsidized and improved seeds
Farmers	45	35	85	100	65
Aggregators	10	90	15	10	12
Agricultural Extension Agents	100	30	100	70	70
Input Dealers	0	0	65	70	30
NGOs/CSOs	0	45	20	5	5
Agricultural Officers	50	60	65	40	45

Most of the senior officers of the Department of Agriculture and Aggregators were highly involved in the establishment of markets. Also, from the Table, 60% of senior officers of the Department of Agriculture were engaged in the establishment of markets. Aggregators were mainly engaged in the market pillar of the PFJ, at (90%), compared to the other pillars of the program. About 70% of agro-input dealers participated in the subsidized fertilizer pillar. 45% of NGOs/CSOs participated in the marketing.

Number of Agricultural Extension Agents

The results show that Agricultural Extension Agents were 10 in 2016, Agricultural Extension Agents were 38 in 2017, Agricultural Extension Agents were 36 in 2018, Agricultural Extension Agents, Agricultural Extension Agents were 32 in 2019, and Agricultural Extension Agents were 27 in 2020.

Table 6: Number of Agricultural Extension Agents

Variable	2016	2017	2018	2019	2020
Agricultural Extension Agents	10	10	8	12	9
NABCOs	0	28	28	20	18
Total	10	38	36	32	27

The study revealed that the number of Agricultural Extension Agents including NABCOs increased from 10 in 2016 to 27 in 2020. This is a good indication for PFJ to achieve its intended goals and objectives.

Extension Service Delivery

The results show that Extension Service Delivery was 43% in 2016, and Extension Service Delivery was 75 in 2020.

Table 7: Extension Service Delivery

Response	Yes		No	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Extension contacts in 2016	120	43	160	57
Extension contacts in 2020	210	75	70	25

The study revealed that the number of extension service delivery increased from 43% in 2016 to 75% in 2020. This is a good indication for PFJ to achieve its intended goals and objectives.

Determination of the Impact of PFJ on Food Security

The third objective was on the determination of the impact of PFJ on food security.

Crop production, economic growth, and the contribution of Planting for Food and Jobs

The study revealed that the output of maize, sorghum, and cowpea in 2020, all increased at an average annual rate of more than 50% per year, with growth in maize production outstripping the rest at 161% per annum. Two of the crops (i.e., maize, and sorghum) were among the four original field crops targeted by PFJ in 2017.

Table 8: Crop production, economic growth, and the contribution of Planting for Food and Jobs

Crops	Year added to PFJ	Production ('000 mt)			Average Annual Growth (%)	Area ('000 ha)			Average Annual Growth (%)	Yield (mt/ha)			Average Annual Growth (%)
		2016	2020	Change		2016	2020	Change		2016	2020	Change	
Maize	2017	2134	3664	1530	71.69	1940	3271	1331	68.60	1.1	1.6	0.5	45.4545
Rice	2017	16081	11257	-4824	-29.998	4873	3829	-1044	-21.424	3.3	4.2	0.9	27.2727
Sorghum	2017	1168	3052	1884	161.30	3749	2907	-842	-22.459	1.0	1.5	0.5	50
Cowpea	2019	1568	2435	867	55.2934	1206	4348	3142	260.531	1.3	0.8	-0.5	-38.462
Groundnut	2018	8645	5494	-3151	-36.449	4552	5606	1054	23.1547	1.9	1.4	-0.5	-26.316
Soya bean	2017	902	749	-153	-16.962	291	3271	2980	1024.05	3.1	1.3	-1.8	-58.065

Effect of PFJ on Food Security, Unemployment, and Poverty

The study assessed the impact of the Planting for Food and Jobs (PFJ) Programme on food security, unemployment, and poverty using a Likert scale of 1-5, where 1 represents "Very Low Extent" and 5 represents "Very Large Extent." The findings indicated that PFJ has significantly improved food security (Mean = 4.0407), reduced unemployment (Mean = 4.1200), and reduced poverty (Mean = 4.0733) in the Kassena Nankana Municipal. Overall, the PFJ Programme has been perceived to have a substantial positive impact on these areas.

Table 9: Effect Of PFJ On Food Security, Unemployment, And Poverty

Response	Frequency	Mean	Std. Deviation
PFJ has improved food security in the municipality	300	4.0407	1.25021
PFJ has reduced unemployment in the municipality	300	4.1200	1.09067
PFJ has reduced poverty in the municipality	300	4.0733	1.17155

Establishing Food Security using a Food Balance Sheet

The Table below shows the food balance sheet and presents a comprehensive picture of the pattern of a municipality's food supply for 2020.

Table 10: Establishing Food Security using a Food Balance Sheet

Crop	Area/ha	Yield/ha	Total Biological Production (mt)	Net Domestic Production (mt)	Per Capita Consumption	Total Consumption Needs (mt)	Deficit (-) Surplus (+)	No. of Bags (100kg)
Maize	3271	1.6	5233.6	3663.52	20	2632.54	1030.98	103,098
Rice	3829	4.2	16081.8	11257.26	30	3948.81	7308.45	730,845
Sorghum	2907	1.5	4360.5	3052.35	30	3948.81	-896.46	(89,646)
Millet	4348	0.8	3478.4	2434.88	54	7107.858	-4672.978	(467,298)
Groundnuts	5606.4	1.4	7848.96	5494.272	40	5265.08	229.192	22,919
Sweet Potato	80	10.2	816	571.2	15	1974.405	-1403.205	(140,321)
Cowpea	823	1.3	1069.9	748.93	20	0	748.93	74,893
Population	131,627							

From the Table above, Maize recorded a surplus of 1030.98, Rice recorded a surplus of 7308.45, Sorghum recorded a deficit of -896.46, Millet recorded a deficit of -4672.978, Groundnuts recorded a surplus of 229.192, Sweet Potato recorded a deficit of -1403.205, and

Cowpea recorded a surplus of 748.93. The study revealed that the total surplus for the municipality in 2020 was 2,344.909, thus in a way the municipality is food-secured.

Table 11: Establishing Food Security Using Food Balance Sheet

Variable	2016	2020
Total Deficit (-)/Surplus (+) of crops produced	300	4.0407

The study revealed that the total surplus for the municipality increased significantly from 145.1 in 2016 to 2344.909 in 2020. The study revealed that with the implementation of the PFJ program, the municipality is food secure.

Impact of PFJ on Food Security

To ascertain the impact of the Planting for Food and Jobs (PFJ) Programme on food security, a regression analysis was conducted. The study tested the hypothesis that PFJ significantly impacts food security in the municipality. The null hypothesis (H_0) stated there is no significant impact, while the alternative hypothesis (H_1) stated there is a significant impact. Food security (the dependent variable) was regressed on access to PFJ (the independent variable) to test this hypothesis. The regression analysis yielded an F-statistic of 13.065 with a p-value of 0.000, leading to the rejection of the null hypothesis at $\alpha = 0.05$. This significant F-statistic indicates a meaningful regression relationship between food security and access to PFJ, demonstrating that access to PFJ contributes significantly to predicting food security.

Table 12: Impact of PFJ on Food Security

Hypothesis	Regression Weights	Beta Coefficient	R ² Services	F	P value	Hypothesis supported
H ₁	PFJ → FS	-.016	0.042	13.065	0.000	Yes

The study revealed that: H₁: Access to PFJ predicted food security, $F(1, 298) = 13.065$, $p < 0.005$, which indicates that Access to PFJ can play a significant role in increasing Food Security ($b = -0.016$, $p < 0.005$). The results hurt food security. For every 1-unit increase in Access to PFJ, Food Security will decrease by 0.12. Moreover, $R^2 = 0.042$ depicts that the model explains 4.2% of the variance in Food Security.

Determination of the Challenges hindering the implementation of the PFJ Program

The study examined respondents' views on the challenges hindering the successful implementation of the Planting for Food and Jobs (PFJ) Programme in the municipality. The identified challenges included the uneven distribution of input points, with many located in

Navrongo, forcing farmers to travel long distances for inputs. There was an inadequacy of seeds and fertilizers due to smuggling and resale, as well as erratic and poorly distributed rainfall affecting crop yields. Political interference, unwanted varieties, late supply, and high cost of inputs also posed significant issues. Inadequate logistics hampered extension service delivery, and there was a lack of appreciation for the E-Extension module among farmers and Agricultural Extension Officers. Additionally, shortfalls in fund releases to the Department of Agriculture and low women's participation in the program were notable challenges.

CONCLUSION

The study concludes that, on average, farmers are somewhat aware of the packages of the PFJ Programme, with all major stakeholders participating in its various pillars. The number of Agricultural Extension Agents in the municipality, including NABCOs, increased significantly from 10 in 2016 to 27 in 2020. With the implementation of the PFJ Programme, the municipality has become food-secure, as evidenced by the substantial increase in total surplus from 145.1 in 2016 to 2344.909 in 2020. The output of maize, sorghum, and cowpea also saw significant annual growth, with maize production increasing by an average of 161% per annum. To a large extent, the PFJ Programme has improved food security, reduced unemployment, and alleviated poverty in the municipality.

Despite these benefits, the PFJ Programme faced several challenges: uneven distribution of input points requiring farmers to travel far distances, inadequacy of seeds and fertilizers due to smuggling and resale, erratic and poorly distributed rainfall affecting crop yields, political interference, unwanted varieties, late supply, and high cost of inputs. Additionally, inadequate logistics hindered extension service delivery, there was a lack of appreciation for the E-Extension module by both farmers and Agricultural Extension Officers, shortfalls in the release of funds to the Department of Agriculture, and low women's participation in the program. Therefore, a holistic and multidimensional approach is needed to address these challenges effectively

RECOMMENDATIONS

The study recommends several measures to ensure the PFJ Programme achieves its goals and objectives. First, there is a need to ensure the even distribution of input points and provide adequate logistics for extension service delivery. Limited political interference is also essential. Building an evaluation culture is crucial, which can be achieved by rewarding participation in evaluation, offering evaluation capacity-building opportunities, providing funding for

evaluation, communicating a unified purpose for evaluation, and celebrating evaluation successes. Increased investments in the agricultural sector and incentives for farmers are necessary to ensure food security and municipal self-sufficiency.

Furthermore, mechanisms should be established to improve and strengthen inter-sector cooperation, collaboration, reporting mechanisms, and private-sector participation in agricultural development. Enhancing access to affordable short- and long-term financing and credit for Farmer-Based Organizations (FBOs) is also vital. Lastly, the Assembly should develop a robust administrative statistics system capable of generating statistics at short intervals to track the progress of goals, targets, and indicators.

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