Factors Influencing Adoption of Climate-Smart Agricultural Practices among Maize Farmers in Ondo State, Nigeria

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Introduction

- Climate change and variability has resulted into decline and instability in production worsening the existing food insecurity and poverty in developing countries.
- The effects of these climatic changes will become even more pronounced among small scale farmers, whose farming activities are weather dependent and vulnerable to climate change, and already adversely affected by environmental degradation and socio-economic risks.
- Despite its numerous benefits, however, adoption rates in SSA are often low (Gurung *et al.*, 2016). Combined with the increasing global population, there is an urgent need for agriculture to adapt to ensure future food security for this growing population (Oduntan, 2022).
- Climate-Smart Agriculture (CSA) therefore represents a set of strategies that can help combat the above stated challenges of climate change by increasing resilience to weather extremes, adapting to climate change and decreasing agriculture's greenhouse gas (GHG) emissions that contribute to global warming (Steenwerth *et al.* 2014).

Empirical Results and Discussion

Table1: Distribution According to the Adoption of Climate-smart Agricultural Practices

Climate Smart Practices		Frequency	Percentage	Ranking
Integrated pest management		9	9.00	5th
Conservation agriculture		11	11.00	3rd
Agro-forestry		9	9.00	5th
Mulching		10	10.00	4th
Crop rotation		5	5.00	10th
Crop diversification		21	21.00	1st
Planting of cover crops		8	8.00	7th
Irrigation		7	7.00	8th
Use of organic manure		6	6.00	9th
Planting of drought and heat tolerant crops		14	14.00	2nd
Total		100	100	

Source: Computed from Field Survey, 2021

Multiple response exist

Table 2: Distribution of Respondents According to the Level of Adoption of CSA

Adoption Level	Frequency	Percentage (%)
High Adopters (50% & Above Adoption of Climate Smart Agricultural Practices)	28	28
Low Adopters (<50% Adoption of Climate Smart Agricultural Practices)	72	72
Total	100	100

Source: Computed from Field Survey, 2021

The results showed that the adoption of Climate Smart Agricultural practices is still low among the household heads despite policymakers and scientist advocacy for more adoption of climate smart agricultural practices to mitigate the effects of climate change on agricultural productivity and improved farmers' livelihoods.

Table 3: Factors influencing Adoption of Climate-smart Agricultural Practices

Parameter Estimates

Variables	Co-efficient	Std. Error	T-Stat	P-Value
Constant	-59.320	78964.002	3.86	.217
Age	-1.005	548.781	4.77	.002***
Marital Status	19.596	35266.538	2.45	.018**
Gender	-19.897	14087.816	1.16	.612
Household Size	-2.130	5470.978	3.89	.124
Educational Status	.820	839.422	3.28	.341
Farm size	-3.152	2275.575	2.41	.004***
Access to Extension Service	15.525	13810.658	3.67	.043**
Farming Experience	1.265	961.143	1.86	.000***
Membership of Cooperative Society	.179	7881.697	2.62	.000***
Access to Credit	.748	35643.283	1.42	.102*
Total Income	-5.413E-7	.013	2.16	.065*
R^2 (Pseudo)	0.8958			
Likelihood Ratio	57.17			

Source: Computed from Field Survey (2021)

*** = significant at 1%, ** = significant at 5% and * = significant at 10%

- The results showed that age, marital status, farm size, access to extension agents, farming experience, membership to cooperative society, access to credit and the farmer's total income significantly affected the adoption of climate smart agricultural practices by high and low adopters in the study area.

Table 4: Distribution of Respondents by Reasons for Non-adoption of CSAP

Constraints	Frequency	Percentage	Rank
Poor extension contact.	17	17.00	2nd
Lack of finance.	22	22.00	1st
High cost of agro-chemicals	10	10.00	5th
Inadequate access to farm machineries and other farm inputs.	8	8.00	6th
Unavailability of improved varieties which are drought and heat tolerant	14	14.00	4th
Lack of labour	8	8.00	8th
Inadequate credit facilities	10	10.00	7th
Low level of income	11	11.00	3rd
Total	100	100.00	

Source: Computed from Field Survey, 2021

Conclusion and Policy Recommendations

- Adoption of climate smart agricultural practices is still very low among the respondents despite policymakers and scientist advocacy for more adoption of climate smart agricultural practices to mitigate the effects of climate change on agricultural productivity and improved farmers' livelihoods.
- Maize farmers' adoption level of climate smart agricultural practices is positively influenced by marital status, access to extension services, farming experience, membership of farmers' association and access to credit.
- Government should develop suitable policies that will encourage and educate farmers especially the old and risk averse rural farmers to adopt and utilize Climate Smart Agricultural Practices (CSAPs).
- Government should provide and support on-farm demonstration training and dissemination of information about climate-smart agricultural practices to the farmers by the extension agents to enable farmers who are not willing to adopt CSAPs see the need to adopt.

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