



Drivers of Climate Smart Agriculture Adoption in Smallholder Farming Households in Nigeria

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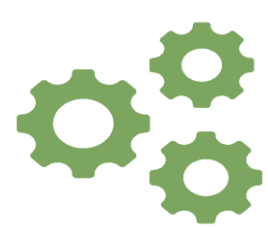


Introduction

- Climate change is reshaping Nigerian agriculture, putting smallholder livelihoods at risk.
- Climate Smart Agriculture (CSA) offers a pathway to boost yields, build resilience, and protect the environment.
- But what really drives smallholder farmers to adopt smart practices?
- This study uncovers the socio-economic, institutional, & environmental factors of CSA adoption in Nigeria.



Fig 1: Farms ravaged by flood and drought



Methods

- Multistage sampling : 1534 rice and maize farmers
- From 179 communities across 16 Nigerian states
- Descriptive statistics & Multivariate Probit (MVP) regression



Results

Table 1: Climate Change Effects on Livelihood (%)

Effect of Changes	DS	NGS	RF	SAH	SGS	SD
Crop yield decline	46.4	73.3	76.8	47.5	66.7	71.2
Livestock productivity ▼	3.6	0.0	3.0	3.4	6.7	4.8
Total loss crop/livestock	32.1	11.1	4.1	27.1	3.3	11.6
Loss of properties	14.3	8.9	3.7	15.3	3.3	3.4
Illness of a relative	3.6	4.4	5.2	1.7	3.3	4.1
Death of relative	0.0	2.2	2.2	1.7	5.8	1.4

AEZ Key: DS – Derived savanna; NGS – Northern Guinea Savanna; RF – Rain forest; SAH- Sahel savanna; SGS – Southern guinea savanna; SD – Sudan savanna



Fig 2: Farms adopted Irrigation and Renewable Energy

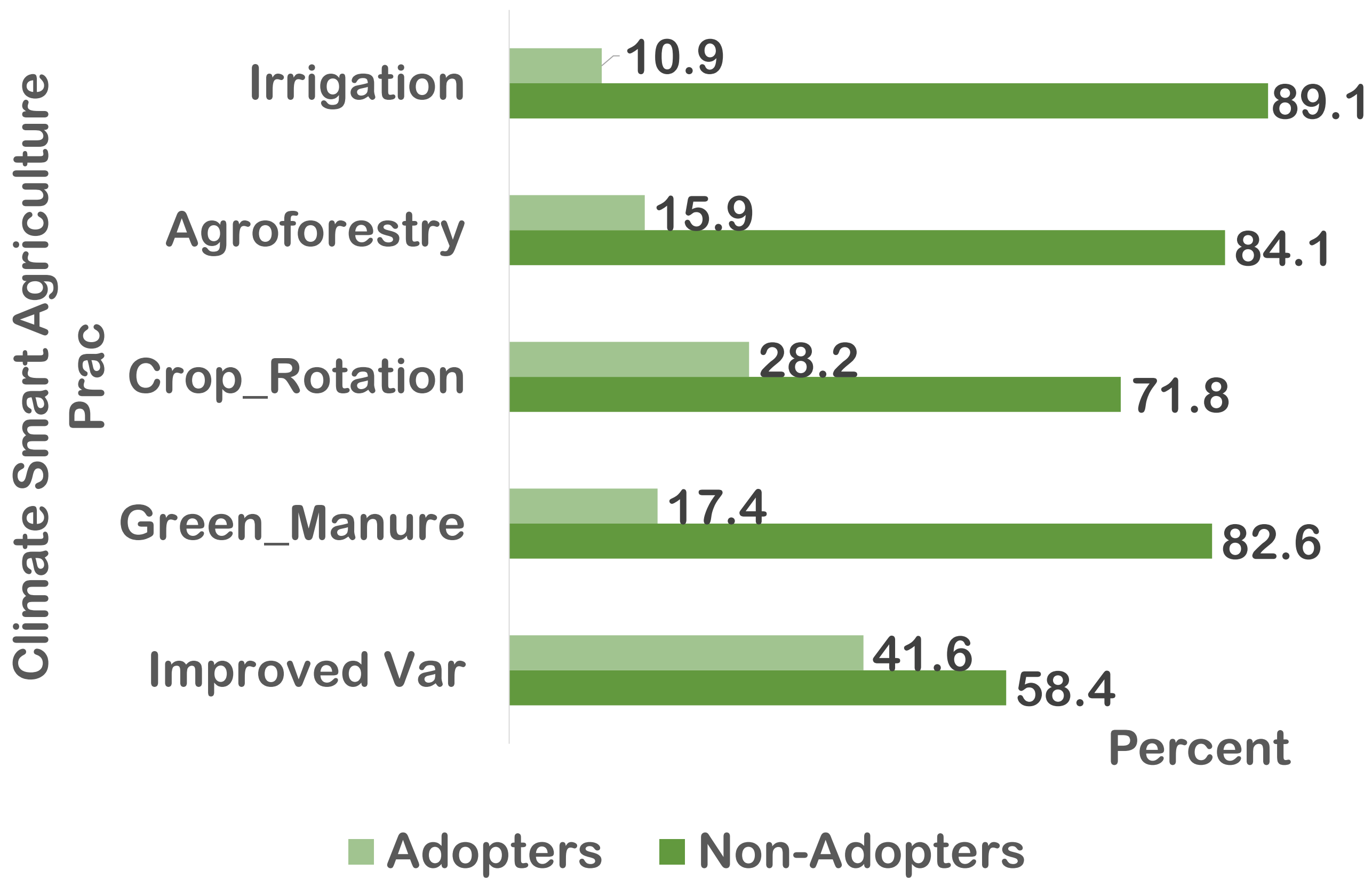


Fig 3: Climate smart agriculture adoption by Nig. farmers

- Most practices complement each other on the same plot
- Credit access, cooperative membership, and land ownership positively drive adoption
- CSA adoption patterns varies significantly across Agro-ecological zones in Nigeria

Table 2: Drivers of Climate Smart Agriculture Adoption

Variables	Improv. var	Agro- forestry	Drip Irrigation	Crop rotatn	Green manure
Age		0.01**	0.01*		
Off farm incom		0.00**			0.00***
Sex	-0.29***				-0.25**
Education					0.01*
Credit Access		0.12*		0.16***	0.11*
Coop member	0.08***	0.04**			
Farm size (Ha)		0.01**	-0.02***		
Nativity		0.24***	0.23**		0.16*
Household size		-0.02***	-0.02***		
Low Land			0.13*	-0.16***	
Land		0.25***		0.10*	
Ownership					
AEZ	0.64***	0.87***	1.04***	0.44***	0.91***

Key: Negative adoption drivers highlighted



Conclusion

- Low Climate Smart Agricultural practices adoption
- Women adopt less complex & expensive practices
- Adoption determinants differs by different technologies & Agro-ecological zones in Nigeria.

Policy interventions should:

- Use farmer cooperatives as platforms for information sharing and resource mobilization.
- Develop AEZ-specific CSA strategies.



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