

## **ADOPTION BEHAVIOUR OF FARMERS IN SOUTHWEST, NIGERIA: THE CASE OF SOYBEAN FARMERS**

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### **ABSTRACT**

It was discovered that only 36.06 percent from the respondents abandoned the adopted technologies afterwards while 64.94 percent sustained the use. The major reasons for partial adoption of set of technologies include the following: unavailability of capital, insufficient supply of input/non – affordability of inputs, high cost of production due to ever rising inflation rate, low research and extension outreach to farmers due to poor funding of research and extension, poor transportation system among others reasons.

**KEYWORDS: Adoption, behaviour, soybean, farmer**

## INTRODUCTION

Research reports have indicated that smallholder farmers who constitute about seventy percent of the rural population sustain Nigerian agriculture. As a result of these food crops like roots, tubers and vegetables are cultivated predominantly in the rain forest zone of the south, grains and cereals are cultivated in the savanna zone of the north [11;5;3;15;16]. The demand pressure on available food supplies have resulted in increasing domestic food prices and imports for food commodities with more elastic demands [10; 8; 9;4]. The foreign trade on oil and non-oil commodities during 1970-2000 showed a deficit of ₦328.8m in 1970 as the balance, which increased to ₦576205.7m in 1995 (Table 1) .

Thus, agricultural productivity and total annual food and fibre production in Nigeria are pitifully poor much below expectation. Latest estimates of the per capital food production index in grain equivalents by [6] and [7] separately and independently affirmed that, the average Nigerian had less than 350kg of grain equivalent of food available to him/her for the year if he/she could afford to buy it.

The objective was to investigate the adoption pattern of the farmers as well as the contribution of some demographic, economic, socio-cultural and environmental characteristics to the dependent variable (adoption pattern index).

## MATERIALS AND METHODS

The multi- stage sampling procedure was used to randomly select three states namely Oyo, Osun and Ondo where adoption (full or partial) of soybean recommended technologies had been reported [12].

The second stage of the sampling procedure consists of purposive selection of two zones of Agricultural Development Programme (ADP) per state, however only one zone was eventually considered fit for Ondo State for logistic reasons. This represents about 60 and 50 percent of the zones in the States respectively. The zones are Saki and Ibadan/Ibarapa in Oyo State, Iwo and Ife/Ijesha in Osun State and Akure in Ondo state.

Stage three consists of random selection of two blocks from the lists of blocks per zone where adoption of the technologies in question had taken place. The blocks selected were Saki, Igboho, Ido and Akinyele in Oyo State; Iwo, Ejigbo, Ijebu jesha and Atakumosa in Osun State; Ishua and Ibule in Ondo State.

Stage four comprised of four cells selected randomly representing 50 percent of the selected blocks.

Lastly, stage five was the purposive random selection of three farm households who have sustained use of the technologies and three farm households that abandoned the technologies from the list of farmers that had adopted the technologies earlier. This was derived from a preliminary survey that was carried out with the assistance of Extension staff of the Agricultural Development Programme (ADPs). This helped in identifying the farmers that had adopted selected technologies within a stipulated period of time. The time frame chosen was between 1990 and 1995, this period recorded high adoption rates in the crop technologies according to ADPs' reports.

### Data Collection and Instrument for Data Collection.

The use of primary and secondary data was employed for this study. Secondary data were the information obtained from literature, project reports, official documents, publications, and consultation and library materials among others. Primary data were collected through the use of a structured and validated questionnaire consisting of both open and closed-ended questions to elicit information from the target respondents. Trained enumerators who have the knowledge of the dialect of the clientele were used to assist in the collection of information required.

The Dependent variable of the study is adoption index pattern, it was measured as not sustained / abandoned the use of adopted technology and still using / sustained the use of previously adopted agricultural technologies within a stipulated period of time. Scores were assigned as follows:

Abandoned use/Not sustained = 1

Still using/Sustained use = 2

Adoption pattern index was then developed from the list of soybean technologies with maximum score of 18. The data analysis was carried out using Statistical Package for the Social Sciences (SPSS). Descriptive statistics such as frequencies, percentages, means, standard deviation and ranges were used.

Pearson Product Moment Correlation (PPMC) was used to test relationships between age, income, and farm size, level of awareness and attitude on one hand and adoption pattern of soybean technologies on the other.

## RESULTS

### Demographic characteristics of respondents

Only 1.44 percent of the respondents had no male member in the household, 44.23 percent had only one male member in each of the households (Table 2 ). About 29.00 percent had 2 male members each and 12.98 percent had 3 male members in each of the households. The respondents with 3 and 4 male members were 7.21

ADOPTION BEHAVIOUR OF FARMERS IN SOUTHWEST, NIGERIA: THE CASE OF SOYBEAN FARMERS

Table 1. Foreign Trade of major commodities (non-oil and oil) (Million) Please give the value of 1 ₦ in USD or EUR!!!

Year/ Qt.	Import (CIF)			Exports and re-exports (fob)			Total Trade			Balance of trade		
	Oil	Non-oil	Total	Oil	Non-oil	Total	Oil	Non-oil	Total	Oil	Non-oil	Total
1970	52.2	704.2	756.4	510.0	375.4	885.4	562.2	1079.6	1641.8	457.8	-328.8	129.0
1971	50.4	1028.5	1078.9	953.0	340.4	1293.4	1003.4	1368.9	2372.3	902.6	-688.1	214.5
1972	45.2	944.9	990.1	1176.2	258.0	1434.2	1221.4	1202.9	2424.3	1131.0	-686.9	444.1
1973	41.0	1183.8	1224.8	1893.5	384.9	2278.4	1934.5	1568.7	3503.2	1852.5	-798.9	1053.6
1974	52.4	1684.9	1737.3	5365.7	429.1	5794.8	5418.5	2114.0	7532.5	5313.3	-1255.8	4057.5
1975	118.0	3603.5	3721.5	4563.1	362.4	4925.5	4681.1	3965.9	8647	4445.1	-3241.1	1204.0
1976	95.0	5053.5	5148.5	6321.6	429.5	6751.1	6416.6	5483.0	11899.6	6226.6	4624	10850.6
1977	102.2	6991.5	7093.7	7072.8	557.9	7630.7	7175.0	7549.4	14724.4	6970.6	-6433.6	537.0
1978	110.0	8101.7	8211.7	5401.6	662.8	6064.4	5511.6	8764.5	14276.1	5291.6	-7438.9	-2147.3
1979	230.0	7242.5	7472.5	10166.8	670.0	10836.8	10396.8	7912.5	18309.3	9936.8	-6572.5	3364.3
1980	227.4	8868.2	9095.6	13632.3	554.4	14186.7	13859.7	9422.6	23282.3	13404.9	-8313.8	5091.1
1981	119.8	12719.8	12839.6	10680.5	342.8	11023.3	10800.3	13062.6	23862.9	10560.7	-12377	-1816.3
1982	225.5	10545.0	10770.5	8003.2	203.2	8206.4	8228.7	10748.2	18976.9	7777.7	-10341.8	-2564.1
1983	171.6	8732.1	8903.7	7201.2	301.3	7502.5	7372.8	9033.4	16406.2	7029.6	-8430.8	-1401.2
1984	282.4	6895.9	7178.3	8840.6	247.4	9088.0	9123.0	7143.3	16266.3	8558.2	-6348.5	2209.7
1985	51.8	7010.8	7062.6	11223.7	497.1	11720.8	11275.5	7507.9	18783.4	11171.9	-6513.7	4658.2
1986	913.9	5069.7	5983.6	8368.5	552.1	8920.6	9282.4	5621.8	14904.2	7454.6	-4517.6	2937.0
1987	3,170.1	14691.6	17861.7	28208.6	2152.0	30360.6	31378.7	16843.6	48222.3	25038.5	-12539.6	12498.9
1988	3,803.1	17642.6	21445.7	28435.4	2757.4	31192.8	32238.5	20400.0	52638.5	24632.3	-14885.2	9747.1
1989	4671.6	26188.6	30860.2	55016.8	2954.4	57971.2	59688.4	29143.0	88831.4	50345.2	23234.2	27111.0
1990	6073.1	38694.8	44767.9	106626.5	3259.6	109886.1	112699.6	42904.4	155604.0	100553.4	36385.2	64168.2
1991	7595.3	79424.9	87020.2	116858.1	4677.3	121535.4	124453.4	129947.5	254400.9	109263.8	74747.6	34516.2
1992	19937.2	125974.2	145911.4	203292.7	3973.3	207266.0	223229.9	129762.4	352992.3	18355.5	-122001	-103645
1993	41329.3	124771.1	166100.4	213778.8	4991.3	218770.1	255108.1	125788.2	380896.3	172449.5	-119780	52669.7
1994	42349.6	1210439.0	1252789.0	200710.2	5349.0	206059.2	243059.8	622397.9	865457.7	158360.6	-115090.0	43270.4
1995	155825.9	599301.8	755127.7	927525.3	23096.1	950621.4	1083391.0	423775.3	1507167.0	771739.4	-576206.0	195533.7
1996	162178.7	400447.9	562626.6	1286216.0	23327.4	1309543.0	1448395.0	707977.4	2156372.0	1124037.0	-377121.0	746916.0
1997	166902.5	678814.1	845716.6	1212499.0	29163.3	1241662.0	1379345.0	7156345.0	8535690.0	1045597.0	-128595.0	-240354.0
1998	168945.2	697956.5	866901.7	1365895.0	305614.4	1671509.0	1388654.0	7259843.0	8648497.0	1059865.0	-129658.0	-236716.0
1999	179865.3	698598.2	878463.5	1478952.0	315698.5	1794651.0	1395623.0	7369211.0	8764834.0	1082534.0	-129867.0	-216140.0
2000	186386.2	705634.5	892020.7	1488652.0	3256875.0	4745527.0	1402354.0	7458945.0	8861299.0	1092658.0	-1305864.0	-213206.0

Source: CBN, 2000 adapted from Ogunsumi (2004)

Table 2: Distribution of Household membership by Sex

	N=133		N=75		N=208	
	Sustainers		Abandoners		All Respondents	
Male number in Household	Freq	%	Freq	%	Freq	%
0	1	0.75	2	2.67	3	1.44
1	66	49.62	26	34.67	92	44.23
2	36	27.07	25	33.33	61	29.33
3	15	11.28	12	16.00	97	12.98
4	9	6.67	6	8.00	15	7.21
5	5	3.76	4	5.33	9	4.32
Above 5	1	0.75	-	-	1	0.48
Mean	1.88		2.08		1.95	
Range	0 to 6		0 to 5		0 to 6	
Standard Deviation	1.17		1.19		1.18	
<b>Female Number In household</b>						
0	1	0.75	2	2.67	3	1.44
1	39	29.32	14	18.67	53	25.48
2	43	32.33	31	41.33	74	35.58
3	20	15.04	12	16.00	32	15.38
4	18	13.53	8	10.67	26	12.50
5	6	4.51	4	5.33	10	4.81
6	3	2.26	2	2.67	5	2.40
7	1	0.75	2	2.67	3	1.44
8	-	-	-	-	-	-
9	2	1.15	-	-	2	-
Above 9	-	-	-	-	-	-
Mean	2.48		2.59		2.52	
Range	0 to 9		0 to 9		0 to 9	
Standard Deviation	1.58		1.68		1.61	
<b>Children Number In household</b>						
0	8	6.02	-	-	8	3.85
1	13	9.77	7	9.33	20	9.62
2	24	18.05	11	14.67	35	16.83
3	22	16.54	15	20.00	37	17.79
4	23	17.29	14	18.67	37	17.79
5	3	2.26	-	-	3	1.44
6	9	6.77	13	17.33	22	10.58
7	3	2.26	2	2.67	5	2.40
8	6	4.51	1	1.33	7	3.37
9	2	1.50	3	4.00	5	2.40
Above 9	20	15.04	9	12.00	29	13.9
Mean	4.81		3.92		4.49	
Range	0 to 35		0 to 17		0 to 35	
Standard Deviation	4.61		3.79		4.35	

Source: Field survey, 2002.

percent and 4.32 percent respectively. Mean of the male members among the respondents' households was 1.95 males with a range of 0 to 6 persons while the modal male number was 1 (Table 2).

Mean household size was 8.36 persons ranging from 4 to 48 and a modal range of 6 to 10 (Table 3). Some 19.71 percent had between 1 and 5 members while 12.98 percent had 11-15 members. About 6.00 percent were in

the family size group 16-20 members while 2.40 percent were in the group of 21-25 family size and the rest 1.44 percent were having family size of above 25 members.

Farmers in the study area were involved in different types of organisation. Table 4 shows the distribution of respondents by types of organisation they belonged to and position they held. The majority of the respondents (87.98 %) were members of cooperative societies and

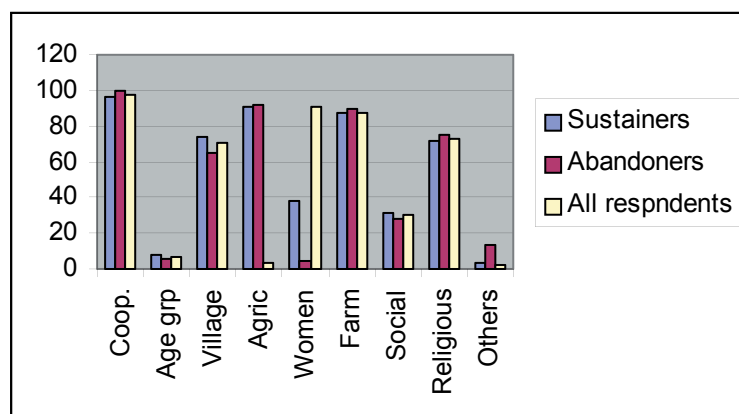


Fig 1: Respondents by the types of organisations

Table 3: Distribution of Respondents according to family size

Family size group	N= 133		N=75		N=208	
	Sustainers	Abandoners	All Respondents	All Respondents	All Respondents	All Respondents
	Freq	%	Freq	%	Freq	%
1 – 5	22	16.54	19	25.33	41	19.71
6-10	79	59.39	41	54.67	120	57.69
11-15	18	13.53	9	12.00	27	12.98
16-20	8	6.02	4	5.33	12	5.77
21-25	3	2.26	2	2.67	5	2.40
Above 25	3	2.26	-	-	3	1.44
Mean	9.11		8.41		8.36	
Range	4 to 48		4 to 28		4 to 48	
Standard Deviation	5.87		5.47		5.73	

Source: Field Survey, 2002.

9.61 percent were officers in their various cooperative groups while 2.40 percent were not involved. This gives a total of 97.59 percent to cooperative societies in the area. About 93.00 percent of the respondents were not members of age group.

The details show that 91.35 percent were members of Agricultural Extension Committee while 97.59 percent were members of a cooperative. Only 7.21 percent belonged to some age groups, a total of 87.98 percent were members of the farm leadership council and 72.59 percent were members of some form of religious groups, the rest total of 2.40 percent belonged to other forms of organisations in the communities (Fig 1).

**Agricultural Activities in the study area.**

Table 5 shows the farming activities as regards major crops grown and livestock kept by the respondents. Crops grown by the respondents include yam, maize, cassava, cocoyam and soybeans among others.

All respondents cultivated maize, cassava and soybeans, a large majority of the respondents (96.63%) cultivated yam while 54.81 percent cultivated cocoyam, and 18.75 percent cultivated vegetable crops while 10.10 percent

grew other food crops.

**Level of adoption of soybean technologies**

The majority of the respondents (54.80%) were aware of soybean technology for 11 to 15 years. This was followed by 31.25 percent who were aware of it for 6 to 10 years. The respondents having been aware for only 1-5 years were 8.17 percent (Table 6).

The respondents were also requested to indicate the year of the first trial of the soybean technology. The pattern of the time of the first trial as indicated in Table 7 shows that 48.08 % of the respondents used it first 16 to 20 years ago. This is followed by 35.10 percent of the respondents having tried it first 11 to 15 years ago while 8.17 percent used it first 6 to 10 years ago while the rest 8.70 percent had the first trial only 1 to 5 years ago.

Similarly the years of the last use of the soybean technology were also asked from the respondents. The proportion of the respondents still using the technology at the time of the study were 63.94 percent while 36.06 percent had abandoned the use of the technologies at different times.

Table 4 Distribution of Respondents According to Types of Organisation and Position Held.

	N= 133 Sustainers		N=75 Abandoners		N=208 All Respondents	
	Freq	%	Freq	%	Freq	%
<b>Co-operative</b>						
No involvement	5	3.76	-	-	5	2.40
Member	118	88.72	65	86.67	183	87.98
Officer	10	7.52	10	13.33	20	9.61
<b>Age group</b>						
No involvement	122	91.73	71	94.67	193	92.79
Member	11	8.27	4	5.33	15	7.21
Officer	-	-	-	-	-	-
<b>Village council</b>						
No involvement	34	25.56	26	34.67	60	28.45
Member	96	72.18	49	65.33	145	69.71
Officer	3	2.26	-	-	3	1.44
<b>Agric, Ext Committee</b>						
No involvement	12	9.02	6	8.00	18	8.65
Member	121	91.98	69	92.00	190	91.35
Officer	-	-	-	-	-	-
<b>Women in agriculture</b>						
No involvement	128	96.24	72	96.00	200	96.15
Member	5	3.76	3	4.00	8	3.85
Officer	-	-	-	-	-	-
<b>Farm leadership</b>						
No involvement	17	12.78	8	10.67	25	12.02
Member	115	86.47	65	86.67	180	86.50
Officer	1	0.75	2	2.67	3	1.44
<b>Social clubs</b>						
No involvement	91	68.42	54	72.00	145	69.71
Member	38	28.57	19	25.33	57	27.40
Officer	4	3.01	2	2.67	6	2.88
<b>Religious society</b>						
No involvement	38	28.57	19	25.33	57	27.40
Member	30	22.57	25	33.33	55	26.44
Officer	65	48.87	31	41.33	96	46.15
<b>Other organisation</b>						
No involvement	129	96.99	74	98.67	203	97.59
Member	3	2.26	1	1.33	4	1.92
Officer	1	0.75	-	-	1	0.48

Source: Field survey data,2002

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Table 5: Crops grown Distribution of Respondents according to crops

Crops	N= 133 Sustainers		N=75 Abandoners		N=208 All Respondents	
	Freq	%	Freq	%	Freq	%
Yam	128	96.24	73	97.33	201	96.63
Maize	133	100.00	75	100.00	203	100.00
Cassava	133	100.00	59	78.67	192	92.31
Cocoyam	106	79.70	8	10.67	114	54.81
Soybeans	133	100.00	64	85.33	197	94.71
Other food crop	17	12.78	4	5.33	21	10.10
Economic trees	39	29.32	29	38.67	68	32.69
Vegetable crops	26	19.55	13	17.31	39	18.75
Livestock Kept						
Poultry	27	20.30	19	25.33	46	22.12
Sheep& goat	96	46.15	55	73.33	157	75.48
Others	2	1.50	3	4.00	5	2.40

Source: Field survey data, 2002

Table 6: Adoption Status of soybean technology

Characteristics	N = 133 Sustainers		N = 75 Abandoners		N =208 All Respondent	
	Freq	%	Freq	%	Freq	%
<b>Years 1<sup>st</sup> heard</b>						
1-5	-	-	-	-	-	-
6-10	17	12.78	8	10.67	25	12.00
11-15	93	69.92	53	70.67	146	70.19
16-20	23	17.29	14	18.67	37	17.80
<b>1st Trial (Yrs)/Adoption level</b>						
1-5	-	-	-	-	-	-
6-10	17	12.78	8	10.67	25	12.00
11-15	93	69.92	53	70.67	146	70.19
16-20	23	17.29	14	18.67	37	17.8
<b>Last used / sustained / Abandoned</b>						
Still Using	133	100.00	-	-	133	63.94
1-5	-	-	31	41.33	31	14.9
6-10	-	-	36	48.00	36	17.3
11-15	-	-	8	10.67	8	3.80
16-20	-	-	-	-	-	-

Source: Field survey data, 2002

Table 7: Distribution of Respondents according to their adoption level of soybean technologies.

	N= 133		N=75		N=208	
	Sustainers		Abandoners		All respondents	
	Freq.	%	Freq.	%	Freq.	%
<b>Soybean technologies</b>						
1. Land preparation	13	9.78	75	-	88	42.31
2. Recommended varieties	133	100.00	-	-	133	64.94
3. Planting time	133	100.00	-	-	133	64.94
4. Method of planting	133	100.00	-	-	133	64.94
5. Fertilizer application	133	100.00	-	-	133	64.94
6. Weed control	133	100.00	-	-	133	64.94
7. Pest and Diseases control	-	-	-	-	-	-
8. Harvesting time	-	-	-	-	-	-
9. Post harvesting	-	-	-	-	-	-
<b>Adoption score</b>						
≤5	44	33.08	75	100.00	119	57.21
6-10	89	66.92	-	-	89	42.79
>10	-	-	-	-	-	-
Mean	8.35		6.92		7.44	
Range	5 - 10		5		5 - 10	
Standard deviation	2 . 36		00		2.48	

Source: Field Survey data, 2002

Table 8: Correlation matrix showing relationships among selected variables

	AGE	ORGA MEMB	EXTCO NT	FACM AIZ	FACTC ASS	FACSO Y	ATT	SCMT OT	STOT
AGE		-0.03	0.06	-0.08	0.04	-0.91	0.04	0.16**	0.15*
ORGAMEMB	-0.30		0.21**	0.01	0.06	0.02	0.03	-0.02	-0.08
EXTCONT	0.06	0.21**		-0.15*	-0.03	-0.02	-0.10	0.06	0.01
FACMAIZ	-0.08	0.01	-0.15*		0.09**	0.88**	0.44**	-0.11	-0.09
FACCASS	0.00	0.06	-0.03	0.90**		0.84**	0.34**	-0.09	-0.08
FACSOY	-0.9	0.02	-0.02	0.89**	0.84**		0.33**	-0.12	-0.09
ATT	0.04	0.03	-0.10	0.44**	0.34**	0.33		-0.09	-0.07
SCMTOT	0.16*	-0.02	0.06	-0.11	-0.09	-0.12	-0.09		0.88**
STOT	0.15*	-0.08	0.01	-0.09	-0.08	-0.09	-0.07	0.88**	

Source: Field Survey data, 2002.

**Key:**

Age = age of respondents; ORGAMEMB= Respondents' membership into organization  
 EXTCONT= Farmers contact with extension agents; FACMAIZ=Factors affecting maize technology sustainability  
 FACCASS=Factors affecting cassava technology sustainability; FACSOY=Factors affecting soybean technology sustainability  
 ATT= Farmers' attitude towards improved technology ; SCMTOT= Total adoption index for the selected technologies  
 STOT= Soybean adoption index; CTOT= Cassava adoption index  
 MTOT= Maize adoption scores;; NS.at Pvalue>0.05; \*=sig at p≤ 0.05.



### The adoption pattern of soybean technologies of the respondents

The total adoption score of 18 for the 9 components of soybean technologies shows that 36.06 percent of the respondents were in the group of abandoners. These were the respondents with adoption scores of 9 and below. The remaining 63.94 percent of the respondents obtained a score of more than 9 points and they were the sustainers. However, the distribution of scores among the respondents ranged from 5-10 scores. Over half of the respondents (57.21 percent had a score of 5 while 42.79 percent obtained the score of 10 with a mean of 7.44 and standard deviation of 2.48 (Table 7).

The study revealed that there were significant positive correlations between age and adoption pattern ( $r=0.16$ ), age and soybean adoption level ( $r=0.15$ ), age and cassava adoption level ( $r=0.14$  (Table 8), organizational membership and extension contact ( $r=0.21$ ), factors affecting sustained use of maize and cassava technologies ( $r=0.09$ ) while a negative significant correlation exists between factors affecting sustained use of maize technology and extension contact ( $r=-0.15$ ). There were also significant positive correlations between attitude of farmers towards improved technologies and factors affecting the sustained use of soybean technologies ( $r=0.33$ ) (Table 8). The reasons might include high cost of inputs due to ever fluctuating and increasing foreign exchange rates. On the part of the farmers, the inputs were beyond their reach as they were resource poor. The extension agents were also constrained to get to the farmers as at when due, as a result of poor transport problems coupled with other technical problems they faced.

### DISCUSSION

None of the respondent farmers adopted the whole package of recommended technology for soybean. However, a part of the listed technologies contained in the package was adopted by the farmers. The reasons might include unavailability of fund and inputs. Farmers will prefer to utilize the scarce available resources economically and profitably. They often substitute locally available materials to reduce cost of production whenever the needs arise. The fact that the majority of respondents sustained the use of the adopted technologies (soybean) is an indication that the technologies were embraced by the farmers in the study area. Farmers may not adopt any technology that they know will not give an advantage over the existing practices.

The results from the study show that the primary occupation of sustainers of the technologies and

abandoners is similar. 86.67 % of the sustainers and 86.47 % of the abandoners had crop farming as their main occupation (Table 5).

Sustainers were all involved in farming as expected. However, they were also engaged in trading, and since the study did not investigate the time spent on farm-work, it may be difficult to say that abandoners were more involved in farming because a slightly greater percentage of them were primarily crop farmers. However [1] also found that co-operators' farms used less labour than non-co-operators' farms. He claimed co-operators had access to some labour saving devices for land clearing and weeding operations.

About 57 percent of the sustainers were members of a co-operative society while 4.80 percent held some office in the co-operative society, while 2.40 percent of the sustainers had no involvement in any co-operative group. 31 percent of the abandoners were members of a co-operative group while 4.80 percent were officers. This means that cooperative members tend to be sustainers more than non-members,

As for the age groups only 5.29 percent of the sustainers were members against 1.92 percent for abandoners. The large proportion of the respondents that were not involved in the age group might imply that age group is not a popular organisation in the study area. However, 46.15 percent of the sustainers were members and 1.44 percent held offices with only 16.35 not involved, showing that the age group membership seems to encourage the sustenance of the newly adopted technologies. For the abandoners 12.50 percent were not involved while 19.20 percent were involved in the village council membership. About 58.00 percent of the sustainers were members of an agricultural extension committee, none of them held any office while only 33.17 percent of the abandoners were members, and 8.65 percent of the respondents were not involved.

About 55 percent of the sustainers were members of the farm leadership council while only 31.25 percent of abandoners were members, and 1.4 percent was officers in all.

About 40 percent of sustainers were not involved in social clubs membership as against 25.96 percent of abandoners. Generally about 27 percent of the respondents were not involved in any religious society membership while 14.42 percent were members and 31.25 percent were officers from only 12.02 percent and 14 percent were abandoners that were members and officers respectively (Table 6).

### CONCLUSION

The farmers in the study area adopted the technologies at

varying times, while some of the farmers also sustained or abandoned previously adopted technologies. Higher proportions of the farmers were found to be sustainers than abandoners. The results supported earlier findings in the studies [1; 2; 13 and 14] that also reported that the level of adoption is higher among co-operators than non-co-operators.

None of the farmer respondents adopted the whole package of recommendations in the crop. However, the farmers adopted a part of the list of technologies contained in the package. The reasons might include unavailability of fund and inputs. Farmers will prefer to utilise the scarce available resources economically and profitably. They often substitute locally available materials to reduce cost of production whenever the needs arise. Majority of respondents sustained the use of the adopted technologies (soybean) is an indication that the technologies were embraced by the farmers in the study area. Farmers may not adopt any technology that they know will not give an advantage over the existing practices. However some farmers still abandoned the use of the technology in the study area study. The policy implication for the agricultural extension is that sustainers adopt innovation more rapidly than abandoners.

#### Recommendation

Therefore, it is suggested that all agricultural development schemes and interventions in the study area should give a focus on adoption behaviour of farmers in order to sustain the use of agricultural technologies, spelling out total adoption to actualize research findings on farmers' fields. Once farmers are aware of concise efforts geared towards total adoption and sustaining adopted technologies, they would gear up and organize themselves so as to benefit from such programmes.

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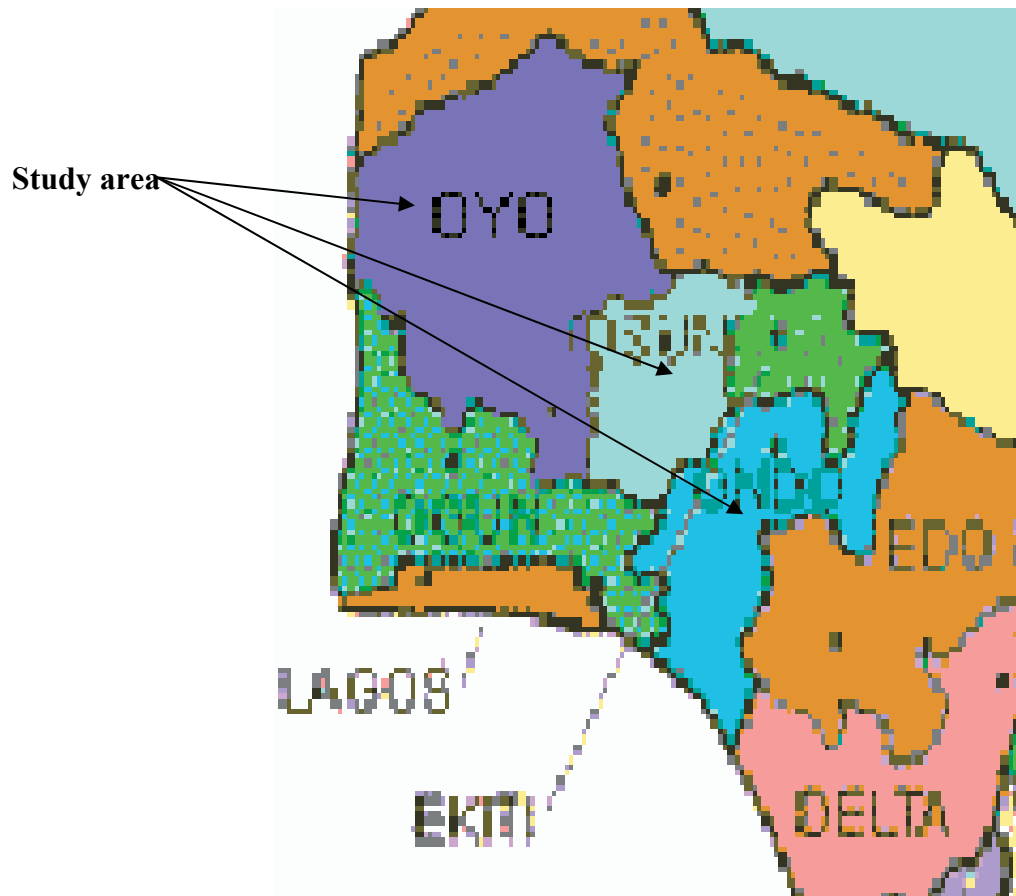
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Map of Nigeria showing all the states.



Map of Southwest Nigeria indicating the sampled states