

Table 7. Small holder land use in eastern Nigeria: Land allocation to enterprises per farmer (1979-80).

Enterprise	Derived Savanna		Lowland Forest		Coastal Lowland		Row Total	
	Ezzambgo	Ikom	Umudike	Akamkpa	Onne	Uyo	Av.	%
Average No. of plots	4.5	3.7	5.20	4.95	4.45	5.50	4.91	-
Area under Tree Crops (ha) ¹	1.34	7.10	15.05	13.79	6.30	11.87	9.24	67.0
Area under Arable Crop (ha) ¹	3.00	4.43	2.30	2.47	5.00	3.78	3.50	25.0
Area under Tree/Arable Crop (ha) ¹	0.12	1.01	0.56	0.81	3.03	0.51	1.01	7.0
Av. total Cult. land (ha) ¹	4.46	12.54	17.81	17.07	14.33	16.16	13.75	-

¹ Fallow periods are often short and contain some cassava resulting in some short fallows being considered as cultivated plots by farmers. This has tended to put the total cultivated land slightly higher along with the problem of double counting of some plots due to intercropping and relay cropping.

Small ruminant (goats and sheep) and poultry production is common with a general trend of more small ruminant production in areas of higher demographic densities where goats are more common and important in both humid and subhumid zones, while sheep and poultry are more important in the subhumid (derived savanna) zone. The number of domestic animals kept by each family is small.

Resource allocation to enterprises and production constraints. Family labor and arable land are the 2 principal resources. Farmers are dependent on family labor and only use hired labor during labor peak periods. A cropping calendar of the 13 most important tree and 18 arable crops showed that upland tree and arable crop farming, as parallel systems of production, compete for farm labor during land clearing, preparing and weeding. It was observed that there is a better utilization of family labor by having both tree and arable food crops than by either alone, and the 2 enterprises fulfill both cash and food needs of the family. The competition for labor between the tree and arable food crop enterprises could be reduced, if not eliminated, if both are integrated on the same land and, when possible, simultaneously operated. However, the practice of burning the bush in land preparation induces the physical or spatial separation of the 2 enterprises and causes arable crops to be grown in distant farms away from the homesteads (Table 7).

State of tree and arable crop farming. In general, there appears to be less expansion of tree crops on new lands. Any increase, especially in cocoa, kola and citrus, is due to rehabilitation and an increase in density of tree crops. Most farmers in the drier savanna and coastal lowlands, particularly under high-population conditions, thought tree crop farming to be declining. Major constraints to tree crop replanting and expansion were credit and lack of production inputs.

Farmers' view toward farming. Many traditional farmers themselves view farming as a non-profitable enterprise and will abandon it if given other options. Eighty-six percent of the farmers stated that they will continue farming. Of these, 68 percent stated that they will continue because they have no other option available to them, 12 percent stated that they have great family responsibility that requires them to continue farming and 6 percent stated that they do not wish to buy foods from the market. Only 14 percent stated that they will continue farming because it is profitable. Those wishing to discontinue farming, especially arable crops farming, often gave old age as their main reason.

Proposed agroecological regions of the survey area: a synthesis. A map at a scale of 1:3,000,000 delineating agroecological regions has been prepared using the data of this survey (Fig. 10). Climate, geomorphology and soils, agricultural land use (farming systems), demographic conditions (density and settlement patterns) and the interaction of these have been considered in identifying these regions.

Accordingly, 5 major agroecological regions were identified:

- I. Basement complex (cocoa/forest) with 4 sub-regions.
- II. Sandstone and coastal sand complex (oil palm/root crop) with 5 subregions.
- III. Niger delta and coastal swamp complex with 2 subregions.
- IV. Upland moist savanna complex with 4 subregions.
- V. Mangroves and coastal sand complex.

Region V was not surveyed, for it is considered a non-agricultural zone. Similarly, region III was not included in the survey because it is nonzonal in that land use is governed by the Niger River as the environmental factor. Only the lower part of Region IV was included in the survey, the derived savanna part, and this region, often referred as the middle belt is agriculturally (crop and livestock) important and is currently experiencing increased agricultural developments with a corresponding increase in population.

Region I and II are the most important for rain-fed traditional farming. The major distinction between these is their difference in geology and soils. In general, soils of Region I are geologically better soils (mostly Alfisols) and can support both tree and arable crop farming. The zone is currently used for cocoa, kola, citrus, etc., and a great variety of food crops is grown. On the other hand, Region II has soils that are chemically poor but with good physical properties (mostly Ultisols) that make tillage easy. Both soils are erodable and easily degradable with intensive cropping, particularly soils of Region II where the situation is already serious.

The agroforestry potentials (alley or strip cropping, planted fallows or taungya, multi-storey farming and agro-silvo-pastoral) are higher for Regions I and IV where such new or improved systems of land use may not be difficult to adopt. But, the same cannot be said for Region II.