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Small-scale timber stand management techniques: a case study of woodlots in Isangati, Tanzania

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Farm System Diagram – Isangati, Tanzania
This farm system diagram outline follows the methods described in Beets (1990).

Physical and Bio Factors
Climate: Avg. rainfall is 1,105-2,700mm. Temperate Climate - Avg. temps are: Jan-May 12-21C, Jun-Aug 12-29C, Sept-Dec 12-21C. Large rain season is Mar-May and small rain season Nov-Jan.
Soils: Fertile, of volcanic origin, often morric andisols. Topo: 2,000m, steep slopes prevent mechanization and require erosion control work. High elevation = high rainfall.
Weeds: Weed each crop with hand hoe 2 times before harvest. Harvest crops twice per year. Pests and Diseases: Insecticide is used and a spray is used for many crops to protect them from the cold.

Socio-Cult and Socio-Econ
Tenure: Children get land handed down to them from their parents once they are old enough or get married.
Land Use: Agriculture, Forestry, Aquaculture (2 man-made ponds), Apiculture.
Migration: Young people moving to urban areas.
Motivation: Land is obtainable, so the more farmer’s work, the more crop they can use for home consumption or sales.
Attitude/Goals: Co-operation.

External Political and Institutional Factors
Heifer International: Conduct seminars dealing with proper livestock management practices, beekeeping, and home gardens. Over 30 villagers have received modern breeds of cattle through the program and 5 modern beehives.

Household
Family Composition: Father, mother, 3 boys, and 3 girls
Health and Education: Health dispensary in the village. Most villagers only finish primary school.
Food Preferences: Ugali (made from maize flour and is a thick porridge of dough like consistency) typically served with beans sauce and a side of leafy greens, avocados, or sour milk.

Family Labor - Off Farm
Farm: Weeding, planting, harvesting, spraying, carrying manure to farm.
Capital: Axes, hoes, machetes

Family Labor - On Farm
Women: Cook, wash clothes, gather fuelwood, fetch water, take care of children, process agricultural products.
Men: Tend to livestock, and handle business negotiations (sales of crops/timber)

Livestock
Avg. Number of Animals
- Chickens - 5
- Cattle - 2
- Goats - 2
- Pigs - 1
Use
- eggs
- milk
- meat

Crops
- Maize
- Beans
- Potato
- Green Pea
- Cassava
- Cash
- Pyrethrum

Crop Residues - Damaged vegetables
- Fodder-Grasses, banana plants, leaves, crop waste

Manure - From stall fed livestock. Use cut and carry system to feed animals. Fill large bags with manure and carry to farm.

Household waste

Fodder

Fuel-wood supply: Woman either walk 1k to the nearby forest reserve and illegally gather fuelwood or collect from family woodlot

Commmunal Grazing: Kids graze their family’s livestock on the local soccer field. Some cattle are tethered or shepherded during the day.

Pest Dynamics

Woman market surplus maize, beans, leafy greens, milk and cook food to sell during market day

Men get money from meat, timber, selling livestock and trade jobs (hawking, shoe repair, building)

Market - Mbeya town is 30km from the village. Market day is every Saturday in the village. People from town come to buy/sell goods and people from nearby villages come to buy/sell surplus goods.

Labor Demand and Supply - Seasonality:
- Low labor demand Aug-Sept
- High labor demand Apr-July

Government Services:
- Agriculture Development Project (ADP): Supply fertilizer
- Education: Little knowledge of exotic tree species or agroforestry practices
- In-depth knowledge of planting crops.

Credit Facilities:
- There is a village group consisting of almost 30 people which is set up for people to borrow money.
- People outside of the group cannot.

Market Prices
Demand

Votes

Government Services

Education

Credit Facilities

Market Prices

Demand