

1ST EASTERN AFRICA AGROECOLOGY CONFERENCE
TRANSFORMING FOOD SYSTEMS FOR RESPONSIBLE PRODUCTION,
CONSUMPTION AND SOCIAL WELLBEING

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*Strengthening Resilience and Sustainability in
Food Systems for Environmental and Socioeconomic Development*

Striving for Resilient Farming Systems through Poultry interventions in Semi-Arid Eastern Kenya

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Introduction

- Poultry farming is an intervention that builds resilience among smallholder farmers in arid and semi arid regions of Kenya.
- Resilience is the ability to withstand climate shocks and adaptation to the changing environment.
- Resilience and diversity play a major role in agroecological transitions.
- Farm diversity contributes to resilient food systems that deliver improved nutrition, hence greatly support and incorporates agroecological practices

Role of Crop- Poultry Integration in Agroecological Transition

- Two significant roles that contribute to agroecological transition and climate change through synergistic benefits.
 - Chicken has lower greenhouse gas compared to cattle contribute less to greenhouse gas compared to bigger ruminants such as cows and pigs
 - Poultry droppings can be used to produce biogas which in turn substitutes for additional fuels

Objectives

- Assess production and management information, chicken breeding practices and marketing of chicken among smallholders in Tharaka Nithi County
- Assess factors contributing to selling of chicken among smallholders in Tharaka Nithi County

Methodology - Site Description

- The study was undertaken in Tharaka Nithi County – Mukothima and Nkondi Wards.
- Tharaka-Nithi County lies in the Southeastern of Mt. Kenya at 0.30°S, 38.06°E with an elevation of 600–1500 m (a.s.l).
- Average temperature of 11 °C during cold seasons, while in the hot seasons, the temperature rises up to 25 °C.
- Largely semi-arid and receives a bimodal pattern of rainfall, approximated to <1000 mm annually
- Subsistence farmers with intensively managed crop, livestock enterprises and slope cultivation that cover up to 60 %.
- The county agricultural sector is subjugated to crops, livestock and tree species.

Data Collection , Sampling and Analysis

- Systematic random sampling technique was used to select respondent of the study where, a structured questionnaire on poultry farming was administered randomly through face to face interviews among 48 smallholder sorghum farmers.
- Both qualitative and quantitative data was collected on socio-demographics, production, breeding practices, crops, livestock and agroforestry enterprises, income and marketing.
- Descriptive statistics were utilized through statistical package for Social Sciences (SPSS) to analyze collected data.

Results - Socio-demographic characteristics

- The average age of male participants ($M= 44.1$ years) was higher than that of female ($M=41.4$ years).
- The average size for male headed households was 5.7 and ranged from 2 to 15 persons while the size for female headed households ranged from 0 to 14 persons with an average of 5.5.
- Men post-primary qualifications compared to women
- Men who had secondary certificate was 58.3% while women was 41.7%.
- Men (66.7%) post-secondary qualifications

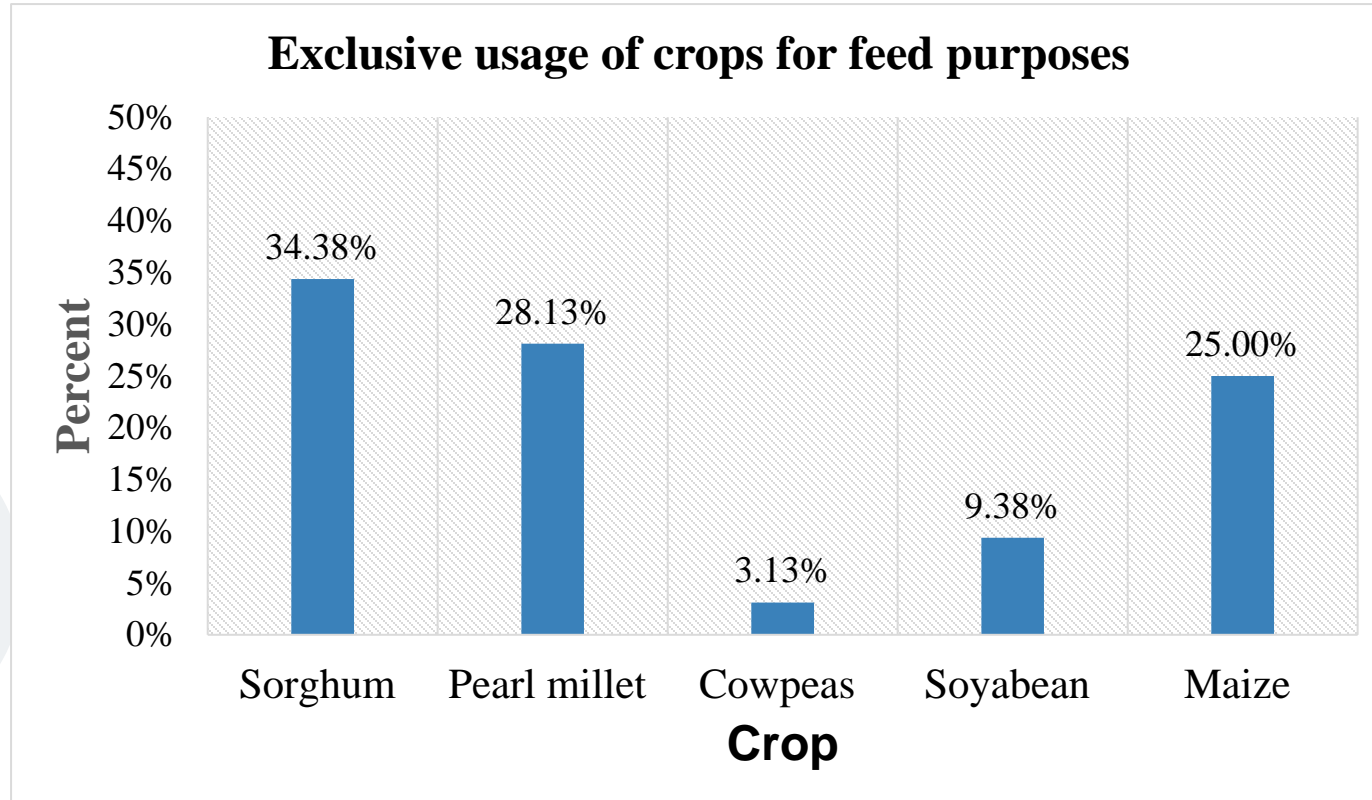
Results- Production, management information and purpose of poultry

- The household wife (89.8%) owns chicken while (95.9%) takes care
- Majority of respondents keep chicken for income generation purposes (34.7% for males and 53.1% for females).

Results- Poultry Feeds and Average Monthly Consumption

- 81.6% use grain by-product as poultry feeds
- 75.8% use kitchen waste;
- 38.8% homemade rations
- 26.5% commercial feeds
- Households that utilize commercial feeds reported the highest monthly consumption (44.8 kg) followed by those that used grain by-product (23.9 kg), homemade ratios (23.6 kg) and kitchen waste (10.8 kg).

Results - : Crops Planted Exclusively for Feeds



Marketing of chicken and chicken products

- 97.7% sold their chicken on average three times a year and nine chickens on average.
- Income (75%) was found to be the most motivating factor for selling poultry among smallholder farmers.

Factors contribution to selling of chicken

Factors		Percent	Cumulative Percent
	School fees	25.0	25.0
	Income	75.0	100.0
	Total	100.0	

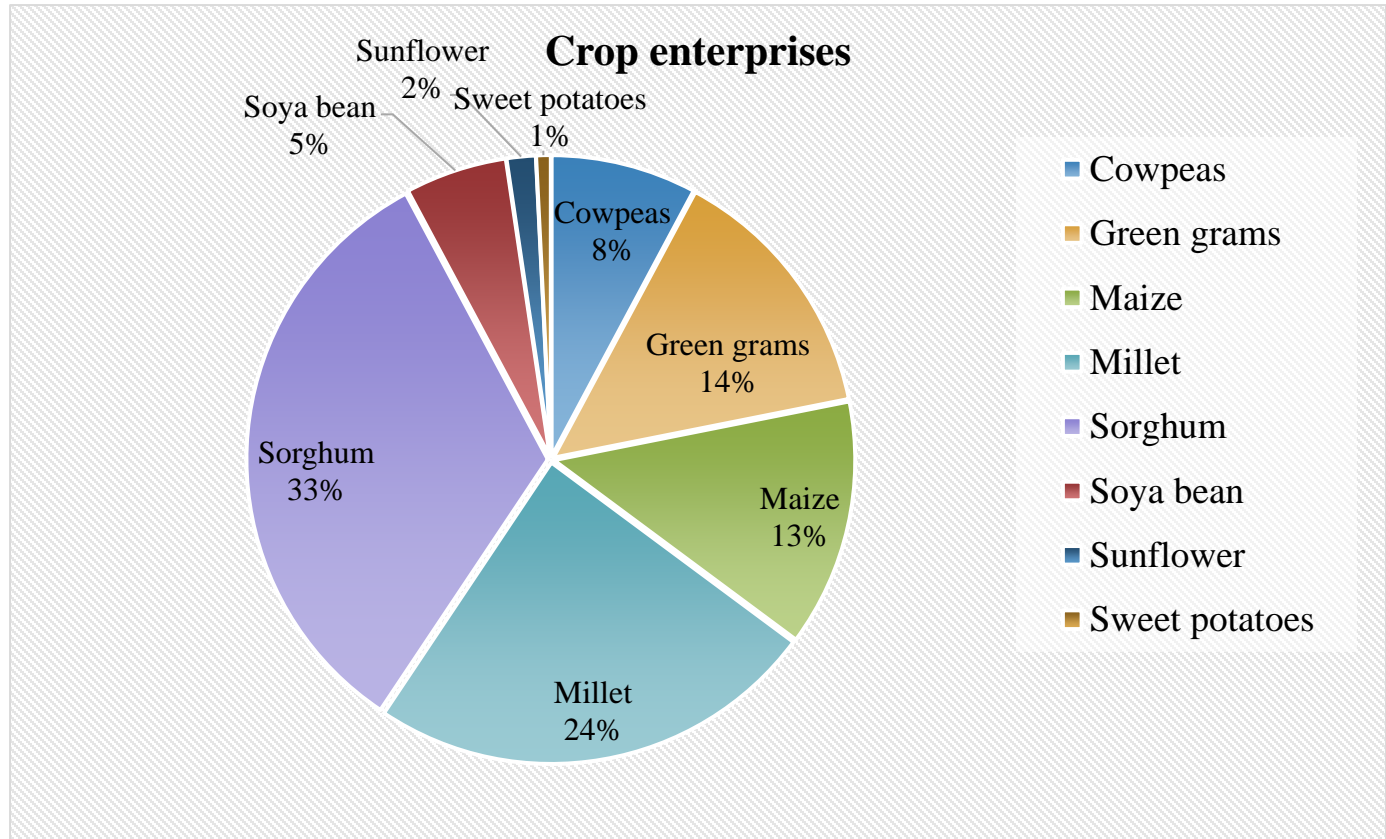
Chicken Customers

Chicken Customers	Percent	Valid Percent	Cumulative Percent
Trader/Broker/Agent	78.7	78.7	78.7
Hotel/Consumers	19.1	19.1	97.9
Individual/farmer group	2.1	2.1	100.0
Total	100.0	100.0	

Main market for chicken

Market	Percent	Valid Percent	Cumulativ e Percent
Village market	56.3	56.3	56.3
Open air Market	33.3	33.3	89.6
Hotelians	6.3	6.3	95.8
Consumers	4.2	4.2	100.0
Total	100.0	100.0	

Crop Enterprises



Animal enterprise kept on the farm

Animal Enterprise		Percent	Valid Percent	Cumulative Percent
	Goat	47.4	47.4	47.4
	Cow	31.6	31.6	78.9
	Pigs	19.7	19.7	98.7
	Sheep	1.3	1.3	100.0
	Total	100.0	100.0	

Agroforestry enterprise trees planted on the farm

Agroforestry Enterprise		Percent	Valid Percent	Cumulative Percent
	Mangoes	45.0	45.0	45.0
	Lemon tree	8.3	8.3	53.3
	Timber tree	23.3	23.3	76.7
	Guava trees	1.7	1.7	78.3
	Neem trees	18.3	18.3	96.7
	Banana plantation	3.3	3.3	100.0
	Total	100.0	100.0	

Chicken production and household food security

- The average percentage of chicken consumed at a household setting is 22.35% and Chicken sold is 41.37%.

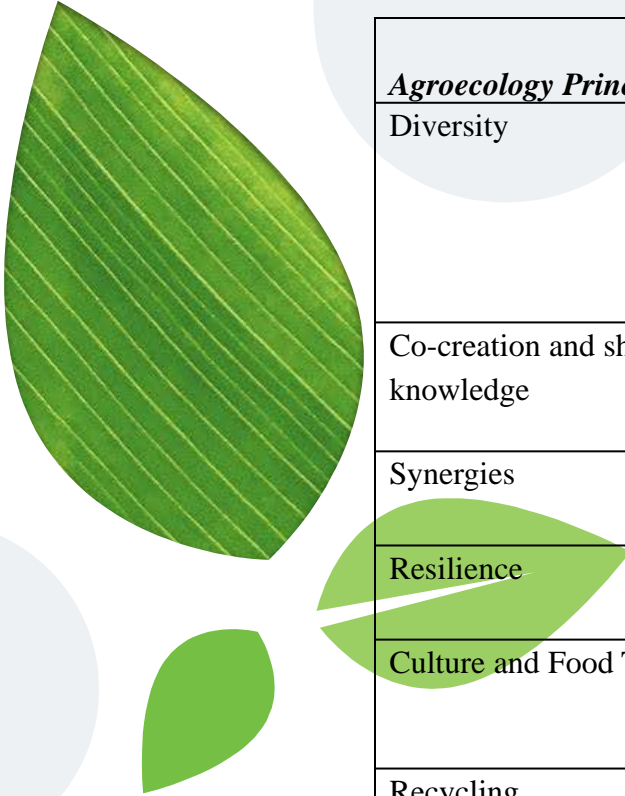
Reasons for pursuing chicken enterprises at household level;

- ✓ School fees (31.3%),
- ✓ food security (25
- ✓ Economic empowerment (16.7%)
- ✓ Chicken is rated as the second most important enterprise in regards to food security.

Intentions with chicken enterprise in relation to household needs

Chicken Enterprise Intention		Percent	Valid Percent	Cumulative Percent
	Food security	25.0	25.0	25.0
	School Fees	31.3	31.3	56.3
	Economic empowerment	16.7	16.7	72.9
	Nutrition supplement	8.3	8.3	81.3
	Buy pesticides	4.2	4.2	85.4
	Income	14.6	14.6	100.0
	Total	100.0	100.0	

Linking the study to Agroecology



<i>Agroecology Principle</i>	<i>Application/ Description</i>
Diversity	Diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing. Diversity of crops (Sorghum, pearl millet, maize and soyabean), indigenous /improved chicken. Diversity of farming methods (crops, agroforestry, poultry)
Co-creation and sharing of knowledge	Through participatory processes with farmers, agroecology blends traditional and indigenous knowledge on poultry breeding and management
Synergies	The integrated crop/poultry systems significantly improve yield, dietary diversity, soil structure and fertility
Resilience	Diversified agro ecological systems are more resilient. This study enhances resilience of farmers and farming communities
Culture and Food Traditions	Agroecology plays an important role in re-balancing tradition and modern food habits, bringing them together in a harmonious way that promotes healthy.
Recycling	Cycling of nutrients from both crop (crop residues) and poultry droppings
Circular economy	Using available household farm produce (grains) and supplementing it with available resources to formulate poultry feed for income. Selling of chicken as source of income

Conclusions and Policy Implications

- Five crop species planted for exclusive use as chicken feed, eight crop enterprises, four animal enterprises, six agroforestry trees were identified
- Wife plays a major role in poultry production, management and decision making
- Income was the most contributing factor to selling of chicken
- Chicken rearing is found to be the second most important enterprise in regard to food security at household level and economic empowerment
- In conclusion, poultry farming is a strategic entry point to building resilience farming systems and could contribute significantly towards food security and income generation.
- Study findings have important implications for policy reforms and practice that target farmers.
- Diversification and resilient farming systems has the potential to mitigate against risks such as severe drought due to climate change.
- The farmers coping mechanism contribute to improved resiliency, and hence agro-ecological intensification which is necessary case for implementation of effective agricultural risk management policies
- Policies related to access to different farm enterprises, farmers' rights provisions are relevant to farming practices

Thanks!

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