

Contribution of Agro-silvo-pastoral System in the Livelihood of Rural Households in Central-west of Sudan

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Introduction

Agro-silvo-pastoral Systems (ASPS) is a collective name for the land use systems implying the combination of trees/shrubs with husbandry and/or crops. In Sudan, the Gum tree (*Acacia senegal*), animal components and crops are presented simultaneous in time and space, and aim to achieve sustainable production. The system has remained an important source of income for millions of smallholders in areas where other income-generating activities are not available (ABDELATEIF, 2012). According to RECARDO, (1996) economic benefits and stability of land use were the direct advantage of ASPS. Similarly, ISAAC (2008) argues that ASPS provides more than 43 products, and contribute essentially to the sustainability of food security. Although ASPS plays a significant role in various biological and economical aspects, the deforestation and desertification of environment remained high. Therefore, one can reasonably assume that, any future strategy neglecting ASPS in Sudan, may have an ambiguous effect on farmer's livelihood.

Objectives

- To determine the income generated by the best land use alternative mix of ASPS
- To estimate the profitability of the best alternative mix of ASPS components

Results

Preferences	Frequency	Percentage
Crops and trees	18	17
Crops and animals	18	17
Animals and trees	26	25
Animals + trees + crops	43	41

Table 1: Preference of practiced mix by farmers

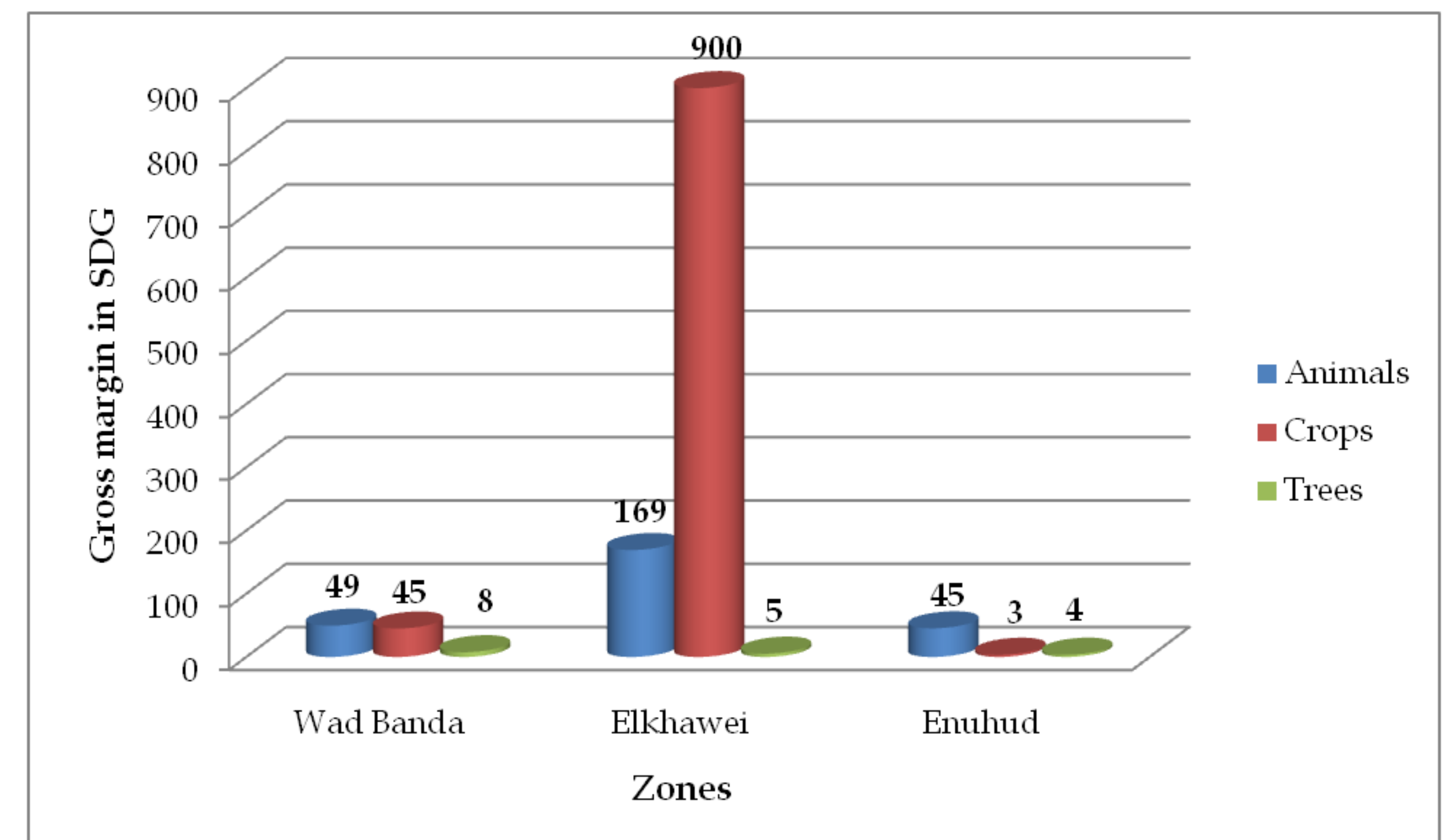


Fig 1: Gross margin variation for ASPS components in the study area

Methodology and Dataset

- Three localities in West Kordofan State, Central-west of Sudan
- 250 of farm households were selected;
- A cluster random sampling technique were used;
- Field survey conducted in summer, 2014.

Analytical tools

The analysis was performed as follows:

- Descriptive statistics;
- Partial budget; and
- Benefit cost analysis

Conclusions

- Practicing of ASPS is dominating and recorded high profitability in all areas under study
- Farmers practiced ASPS to increase their income and offering food and shade for animals
- Animals are more preferable for local people in all three areas due to stability of price in all seasons
- For comparison, *Wad Banda* reported highest income in trees, *Elkhawei* recorded higher net revenue in animals and *En-Nuhud* revealed that crops are the best.

Recommendation

To promote sustainable practice of ASPS, the policies that encourage the adoption of ASPS components should be improved. This could be possible through launching a sustainable education program on ASPS practices and supporting farmers and organizations interested to invest in Agroforestry.

References

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- ❑ ISAAC, B. (2008). Impact of Agroforestry on the Livelihood of Rural Farming Households: M.Sc. Kwame Nkrumah University of Science and Technology.
- ❑ RECARDO, R. (1996). Agro-silvo-pastoral Systems: A Practical Approach Toward Sustainable Agriculture. Journal of Sustainable Agriculture. 07/1996; 7(4):5-16.

Components	Crops/sack/ha	Animals/head	Trees/quintal/sack/ha
Wad Banda locality			
Land use alternative mix	Millet	Sheep	NFTPs
N. R. in SDG	56.000	161.000	76.000
Amount unit	24.9	268	80
El-khawei locality			
Land use alternative mix	Groundnuts	Sheep	Gum arabic
N. R. in SDG	39.000	301.000	48.000
Amount unit	10.2	532	6.5
Enuhud locality			
Land use alternative mix	Groundnuts	Cattle	Gum arabic
N. R. in SDG	97.000	128.000	93.000
Amount unit	22	27	7.96

Table 2: Best land use alternative mix of ASPS components