Information System Better-iS

ZALF - Output

Contact details: **Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e. V., Institute of Socio-Economics, Götz Uckert, Harry Hoffmann, Stefan Sieber**

Email address: uckert@zalf.de

Phone: 0049 33432 82 225

Street, zip code, city, country:

Eberswalder Str. 84, 15374 Müncheberg, Germany

Summary:

In Laela, 75 % of the sunflower seeds are traded by retailers. The other 25 % are processed in oil which is locally consumed. The gain obtained from oil is higher when value is added by producing it outside the harvesting season rather than during the harvesting period. Retailers could potentially earn more than TZS 650 per kg of seeds. On the other hand, farmers who sell their harvest during the harvest sell it at a loss because the total agricultural production costs of seeds are higher than its price.

Title:

Retail options in the value chain of sunflower in Laela

Problem and Objective:

The village of Laela (5.460 inhabitants) is situated in the Rukwa District, in Western Tanzania. Its geographical situation is mainly characterized by its remoteness. The nearest larger cities are Sumbawanga (93 km) and Tunduma (130 km).

75 % of the territory of Laela is used for agricultural activities. This represents an area of 7.403 acres. Main crops are maize, finger millet and sunflower. Groundnuts, beans and sorghum are also commonly produced, livestock keeping is common. About 75 % of the farmers keep oxen for ploughing and for transport. Rukwa Region is characterized by the Tanzanian government as a “food basket” region. This implies specific political restriction such as a ban on food exports outside Tanzania or on the use of food crops for energetic purposes. Laela is also a regional trading centre for agricultural products, especially maize.

According to the villagers, sunflower is grown on 15 % of the total arable land in Laela. It is therefore the third most important crop after maize and groundnuts. Sunflower can be cultivated either in monocropping or in intercropping systems. The produced sunflower can be sold directly to retailers or it can be processed in oil for local consumption. The local processing facilities in Laela are limited.

The Master thesis aims at describing the income generation by sunflower production in Laela whether the seed are traded or processed during the harvesting season (high seed supply) or in the off-season (low seed supply).

Method:

Four situations have been simulated:

1) Farmers sell their sunflower production during the harvesting season (seeds are at their lowest price)

2) Retailers buy sunflower seed during the harvesting season and sell them when prices rise (in December) – storage costs need to be considered

3) Oil producers buy seeds and process them during the harvesting season; seed and oil prices are the lowest because the supply is high. Wages are high because needs for workers are high.

4) Oil producers buy seeds during the harvesting season (at low price) - seeds are stored until being processed in December. Oil price is high and wages are low.

The data used in this study were generated through semi-structured qualitative interviews with local stakeholders and a quantitative socio-economic household survey (160 households) compiled in a three-week field visit in Laela, in November and December 2010.

Results:

According to our study, in Laela 429 households on 1.260 (34 %) cultivate sunflower. 691 acres of sunflower are cultivated, that is to say 9,3 % of the arable land (7.403 acres). 26 % of this surface are cultivated in monoculture whereas 74 % are intercropping. Yield is higher when sunflower is cultivated in monoculture than in intercropping (322,50 kg/acre against 181,50 kg/acre). The average yield of sunflower seeds is 217,79 kg/acre and the average production in Laela is 150,5 t. 75 % of the seeds are sold by retailers and 25 % are processed in oil and sold locally.

1) In the situation where the farmers sell their sunflower production immediately after the harvest, it appears that seeds are sold at a loss. Ugulumu estimates production costs of one

kg sunflower seeds in Tanzania and Kenya at TZS 333 to TZS 389 (average: TZS 361), which is much higher than the selling price observed in Laela during the harvesting season.

2) When seeds are bought during the harvesting season at the lowest price (TZS 170 per kg) and are sold at the highest price observed in Laela (TZS 833 per kg), the retailers can realise a profit of TZS 653 per sold kg of seeds. This is the most profitable situation which could be met by the retailers.

3) If seeds are bought and processed during the harvesting season and if oil is sold during the same period, processors can potentially earn TZS 280 per kg processed seeds.

4) In the last situation, the potential income per kg seeds (TZS 485) is much higher than in the previous situation in spite of storage costs. This is due to the lower wages in December than during the harvesting season and, above all, to the higher price of sunflower oil in December (about TZS 2.500 per litre oil against TZS 2.000 during the harvesting period).

Lessons learnt:

For practitioners:

- The price of sunflower seeds during the harvesting season does not enable the farmers to recover their production costs – potential systems should be realised which do buffer this mismatch.

For policy implementation:

- Potential incomes from sunflower are higher when seeds are processed in oil after a storage period. This could for example provides job opportunities during little-activities periods.
- Local market for sunflower oil is small. For cooking, sunflower oil is in competition with imported palm oil.
- Prices for sunflower oil are very similar between Laela and the other markets (e.g. Sumbawanga). This explains the non-occurrence of sunflower oil trade outside Laela.

Documentation

		Surface of sunflower		Yield of sunflower		Sunflower production		
		Acres	% of the total sunflower area		[kg/acre]		[kg]	% of the total sunflower production
HOUSEHOLD SURVEY	**Monoculture**	30,5	26%	Min	321	Min	9.791	38%
				Max	324	Max	9.882	
				Average	**323**	**Average**	**9.836**	
	Intercropping	88	74%	Min	156	Min	13.728	62%
				Max	207	Max	18.216	
				Average	**182**	**Average**	**15.972**	
	Total	**118,5**	**100%**	Min	198	Min	23.519	100%
				Max	237	Max	28.098	
				Average	**218**	**Average**	**25.808**	
LAELA		**691**			**218**		**150.494**	

Trade of sunflower seeds		**Trade during the harvesting season (by farmers)**	**Trade in December (by retailers)**
	Bought seed price	**Low**	
	Sold seed price	**Low**	**High**
Total production of sunflower [kg]		150.494	
Proportion used [%]		**75%**	
Quantity used [kg]		**112 870**	
Price of seeds [TZS/kg]		170	833
Turnover [TZS]		19.187.944	94.020.927
Seed costs [TZS]		0	170
Average production costs [TZS/kg]		361	0
Storage costs [TZS/kg]		0	10
Total production and storage costs [TZS]		40.746.164	20.316.647
Profit [TZS]		-21.558.220	73.704.280
Profit per kg seeds [TZS/kg]		**-191**	**653**

Trade of processed sunflower oil in Laela		Trade during the harvesting season	Trade in December
	Seed costs	Low	
	Oil price	Low	High
	Wages*	High	Low
Total production of sunflower [kg]		150.494	
Proportion used [%]		**25%**	
Quantity used [kg]		**37.623**	
Extraction rate [kg/L]		3,5	
Quantity of produced oil [L]		**10.750**	
Oil price [TZS/L]		2.000	2.600
Turnover [TZS]		21.499.097	27.948.826
[per litre]:			
Seed costs [TZS]		595	595
Transportation costs [TZS]		210	210
Storage costs [TZS]		0	70
Expeller costs* [TZS]		368	321
Filtration costs* [TZS]		105	35
Income from press cake [TZS]		259	259
Production costs per litre oil [TZS/L]		1.019	972
Total production costs [TZS]		10.948.415	10.448.024
Profit [TZS]		10.550.682	17.500.803
Profit per kg seeds [TZS/kg]		**280**	**465**

* because of different wages: high: TZS/h 375 and low: TZS/h 125

Better-iS
IFPRI
Leibniz Universität Hannover
World Agroforestry Centre
zalf Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.
Wuppertal Institute for Climate, Environment and Energy
ASARECA
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
On behalf of Federal Ministry for Economic Cooperation and Development

Policy recommendations :

To extend markets for sunflower oil produced in Laela could generate incomes and job opportunities. Examples of new market opportunities could be:

- The increase of the use of sunflower oil in Laela by reducing the competition from imported palm oil;
- The use of sunflower oil as a diesel substitute;
- To facilitate the trade of sunflower oil by decreasing the remoteness of Laela (improvement of transport infrastructures…).

Reference:
RORDORF, J. (2011) *Opportunities for a sustainable rural energy supply through renewable energies in developing countries. Socio-economic feasibility study of the operation of a multi-functional platform in the village of Laela, Tanzania on locally produced biofuels. Master thesis: Berlin School of Economics and Law, Institute of Management, 158 p.*

The chapters of the factsheet do provide an overview of the thesis. The whole document can be downloaded via this link:

http://www.better-is.com/files/Master_thesis_Rordorf.pdf

Additional detailed and comprehensive background information available at Better-iS homepage:
http://www.better-is.com/files/Hoffmann_etal_2012_Sunflower_as_horesepower_IFSA_conference_Aarhus.pdf

Participating institutions: International Food and Policy Research Institute (IFPRI), Institute for Environmental Economics and World Trade IUW, World Agroforestry Centre ICRAF, Wuppertal Institute for Climate, Environment and Energy, Leibniz-Centre for Agricultural Landscape Research (ZALF e.V.), Association for Strengthening Agricultural Research in Eastern and Central Africa. Associated partners: SOKOINE University of Agriculture, Ministry of Agriculture, Food security and Cooperatives Tanzania, Ministry of Energy and Minerals, Tanzania.