



USAID
FROM THE AMERICAN PEOPLE

RELPA
REGIONAL ENHANCED LIVELIHOODS
IN PASTORAL AREAS

ELMT
ENHANCED LIVELIHOODS IN
THE MANDERA TRIANGLE

ELSE
ENHANCED LIVELIHOODS IN
SOUTHERN ETHIOPIA

ELMT TECHNICAL BRIEF

FODDER PRODUCTION: Experiences and Lessons Learnt By VSF Suisse



Introduction

As part of the ELMT program, VSF-Suisse, decided to promote fodder production mainly to enhance livelihoods through strengthening of alternative, complementary and enhanced income sources, but also with a view to protecting and enhancing livestock based livelihoods in the event of drought. The production of fodder also has a potential to stimulate livestock marketing as a lack of feed is often cited as a constraint by pastoralists to bringing livestock to market.

Approach

Fodder production was promoted along the permanent rivers Dawa and Juba around Mandera in Kenya and Luuq, Bulla Hawa and Dollow in Somalia where people were already familiar with fodder production through various development interventions, but were constrained by lack of seeds and low technical capacity. Fodder production was also introduced for the first time in Kinna, Garbatulla Districts, Kenya along the Bisan Adhi River.

VSF Suisse implemented the activity through two distinct approaches: one directly with individual farmers (direct approach) and secondly via local NGOs in Somalia: Dollow Farmers' Co-operative Society, DFCS and Moonlight Development Agency, MODA (indirect approach).

In the direct approach, community sensitization on the importance of fodder production and conservation was carried out and criteria for selection of contact farmers was defined (see Annex 1). 7 farmers were selected from Mandera and Rapsu respectively and 10 Luuq, 10 Harmare and 11 from Bulla Hawa in Gedo, Somalia. The farmers were then trained in groups by

VSF-S staff directly on all aspects of fodder production from land preparation, establishment of various fodder crops to utilisation and conservation of the fodder. In each area one of the farmers was selected to develop a demonstration farm where practical trainings could be held as well as community field days.

In the indirect approach, local NGO staffs were trained in the same skills that were then passed on to the fodder farmers. MODA selected 20 farmers in two groups to work with, and in the case of DFCS, 73 of the 375 registered members, expressed an interest in expanding their fodder production and were selected.

VSF-S field staff carried out regular follow up and monitoring visits for both approaches and provided on farm technical advice. In the case of direct farmers, this was carried out once a month and in the case of indirect farmers once a quarter.

VSF-S also provided direct farmers with about 10kg of seed as well as farm implements (hoe, machete, forked hoe, rake, spade, and sisal twine for baling, sickle, gum boots, spring balance and calculator, hay balers). In the case of DFCS, farmers purchased seed at cost price and the Co-operative constructed a central store where fodder purchased from contact farmers was stored until the dry season. In the case of MODA a pump set was also provided to the group. In addition 1853 Calliandra seedlings distributed to farmers in Somalia for browse for camels, cattle and shoats.

All of the farmers in Mandera and Somalia had previous experience of cultivating fodder, while in Rapsu it was new to the area. Most farmers cultivated on small areas of land 0.5 - 3



Save the Children



acres, with an average of 1 acre of land that had previously been left fallow and in some cases not used for pasture either by the owner or community.

Fodder field days were also held at the demo plots where the farmers shared their experiences and disseminated relevant information to other members of the community.

Sourcing and delivery of fodder seeds turned out to be more challenging than expected as there were almost no fodder seeds available in Kenya due to a large order by Yemen to the Kenya Seed Company. Finally VSF Suisse managed to source Sudan grass seeds from Gode Ethiopia with the support of SC/US. Leucaena fodder tree seeds were sourced from KEFRI – Muguga in Nairobi, velvet beans were supplied by a progressive farmer from Rhamu (Mandera) and Napier grass cuttings were sourced from Garissa with the support of the District Livestock Production Officer from Mandera East. As a result of these challenges it was decided to emphasize seed multiplication in trainings and farmers were encouraged to overgrow part of their fields to produce seeds. Also at the beginning of the project, the farmers had been asked to return 20% of the seeds they were given to VSF-S so they could be passed on to other interested farmers. This was later revised to include farmers issuing their seed directly to interested farmers within the community, as result of which over 197kg of Sudan grass seed was passed over to secondary beneficiaries.

It was also decided to strengthen the skills of staff through a training provided in collaboration with the Kenya Arid and Semi-arid Lands (KASAL) project of the Kenya Agricultural Research Institute (KARI Kiboko). Following the training VSF-S developed a plan for a community fodder seed bank where fodder farmers would reserve a proportion of each season-crop for seeds for the next season as well as for seeds to sell to new fodder farmers. The incentive to reserve seeds would be driven by the need for seeds for subsequent crop and income from their sale. One site was selected for community based forage seed system demo in Dollow. Also in Somalia farmers were given 10l aluminum cans for storage of seeds, as recommended at the KARI training in order to extend the storage life of seeds from 1 year when sacks are used to 4 years with the cans.

Staff and selected beneficiaries also participated in a fodder study tour to the Kenyan supported fodder farms in Mandera, KARI research stations (Kiboko and Katumani) for fodder and forage research and production and also to some progressive farmers in Machakos and Makindu Districts to expose them to large scale production.

In Somalia one store was constructed in each of the project areas and in Kenya 2 stores were constructed in Mandera East in collaboration with active farmers who were producing large volumes of fodder.

Achievements

Initially only our beneficiary farmers were trained, however with time, this approach stimulated considerable interest among neighbouring farmers and an additional eight farmers expressed their interest in fodder were later trained by VSF Suisse in Kenya. At least 33 non contact farmers engaged in fodder activities as a result of field days and demo plots in both Kenya and Somalia.

In most cases the first harvest was collected in September 2008 until November 2010 the following amounts of fodder were produced. MODA farmers first harvests were towards the end of November 2010, so their production data is not included.



Picture by AbdHamid Ahmed, December 2009

Fodder store constructed at Gawedo in Bulla Hawa. Similar designs were used for stores at Luuq and Hamare.

In addition to cultivated fodder many of the contact farmers' cut wild grass and sold or exchanged it for labor to weed the land. Farmers also harvested a total of 664kg of fodder seeds.

As a result of feeding the fodder to their own animals farmers reported increased milk production and body weight (with an average of 1 liter and 0.5 liter increase in cattle and goat milk respectively).

In the case of Rapsu, the government purchased 1,200 bales at \$2.9 per bale to distribute to drought affected pastoralists and agro pastoralists. The fodder was purchased at a cheaper price than in highland markets and enabled the government to distribute to more vulnerable people. While in Mandera farmers sold approximately 1,400 bales to the government at \$3.5 per bale.

Where fodder was sold it was mainly sold direct from the farm, rather than in the local markets. However as fodder was mainly sold during the dry season where there was great demand it was unlikely to have affected the female grass sellers.

As illustrated in this PIA simulation exercise below, most farmers reported that they preferred Sudan grass than other crops because of regenerating ability and ease of establishment. Cowpeas ranked highly for palatability and maize for its seed availability and accessibility. Multi-purpose versus single purchase varieties fodder required less labour and water than maize.

During monitoring several farmers mentioned that they preferred fodder (especially Sudan Grass) to their other crops as it requires low input, both in terms of labor (as it can be harvested up to four times before replanting), and also doesn't require herbicides and pesticides like crops such as tomatoes. Several farmers also reported that fodder production was more profitable than maize production, particularly when food distributions are carried out in the area, which depress food prices. It was also reported that the growing of fodder particularly in Rapsu opened the eyes of pastoralists to non grazing options for feeding livestock and encourage people to cut and carry grass for feed.

Table 1: Production and income information on fodder farmers

	Mandera	Rapsu	¹ Direct farmers from Somalia	DFCS (Dollo)	MODA (Luuq)	All farmers
Number of contact farmers	7	7	10-Luuq, 10-Harmare and 11 from Bulla Hawa	73	65	183
Total area planted (acres)	40	5	40	200	46	331
Total amount harvested (bales)	18,317	1,543	14,094	42,553	0	76,507
Percentage sold	20	23	12	26		81
Actual amount sold (bales)	3,663	349	1,719	11,064		16,795
² Selling price per bale (USD)	3.33	3.33	3.33	3.33		3.33
Income from sales (USD)	12,199	1161	5726	36843		55,929
³ Average income per farmer (USD)	1,743	166	185	505		650

¹ The 31 farmers are from Somalia, the monthly data collected from them was analyzed based on the PIA data collected from the MODA farmers who had not realized significant harvests by November 2009

²The selling price is an average of the selling price of a bale of fodder realized by the DFCS. Though the selling price of fodder by Rapsu farmers to the government was priced at KSh 200.00 (2.9\$).

³Total income generated from fodder sales in the four areas was 55,929 USD Dollars during the project life, with average income per farmer shown in the table above as per region.

market. Working with local NGOs in Somalia also enabled VSF to operate in areas of Somalia that would have otherwise been restricted due to security issues.

Lessons learnt and Recommendations

The approach used only reached a limited number of farmers and benefited only those farmers who had access to land and water pumps. There is a need to examine how to upscale the approach and enable other people to benefit from fodder production by for example providing credit for pumps.

For urban dwellers a gunny bag approach to fodder production or the use of kitchen fodder gardens should be explored, particularly using domestic waste water. This would boost not only the maintenance and sustenance of the urban small livestock, but also increase the productivity of such animals.

Improving linkages between fodder suppliers and rural areas may stimulate the production and marketing of fodder, as this would enable pastoralists feed their livestock in very hard times as they move with their animals especially in such of water. At the same time, opening up avenues of selling fodder to pastoralists at water points could provide an increased income to the agropastoralists.

Many of the farmers especially around Mandera were not producing fodder due to lack of seeds and the fact that their previous material had been washed away by floods. Again in 2008 farmers in Madera lost their crops due to flooding, highlighting the need for better seed banking and more effective early warning information and response. Accessible early warning information at local level, would also enhance producers' ability to judge the best and most important time to sell.

In order to reap the benefits of seasonal price fluctuations and maximise the availability during drought, good storage facilities are essential.

INDICATORS	Sudan	Napier	Maize	Cowpeas	Others (Indigo)
Regenerating Ability	5	3	0	2	2
Palatability	2	1	3	4	2
Storage	3	1	2	1	5
Ease of Establishment	4	2	2	3	1
Seed Availability	2	1	5	3	1
Accessibility	2	1	4	3	2
Total	18	9	16	16	13

Ranking types of fodder: Exercise at PIA training, Garissa, August 2009

The local government particularly the DLPOs in Kenya were involved in all aspects of the process and were very interested and supportive. As a result the DLPO in Garbatulla is now looking to expand the fodder activities in his district and set up another demo plot in the other side of the town with support from the Arid Lands Development Program.

Working with DFCS was a cost effective way of reaching a large number of farmers and the close relationship between farmers enabled co-operation on seed purchase and supply to the

Farmers lacked access to credit facilities which would enable them to access proper water pumps, irrigation material, certified seeds and labor with ease and allow them to withhold sale until drier periods and engage in fodder trade.

Further analysis needs to be carried out on the profitability of fodder production given other food crops and the cost benefit analysis given the value of the land and water resources required.

As a result of the selection criteria only men were chosen. How women could be helped to benefit from such production also needs examining, especially as increasing cultivated production could limit women's access to riverine areas where they currently collect grass for sale.

Government investment in fodder reserves which are only released at the most critical periods when the private sector cannot meet the need may also be important to ensure that the most vulnerable benefit and the scarce resources are not spent on expensive trucking of feed from other areas or slaughter destocking is not carried out unnecessarily. Fodder could be linked to other interventions including stimulating early off take.

Encouraging pastoralists to also buy fodder early when it is cheaper and store would also enable them to benefit more from the fodder production.

Seed bulking

Fodder seed bulking by the farmers is an essential and integral component of any fodder project, unless the private input supply sector reliably supplies recommended seeds. Three options combined or each on its own exists:

- Farmers establish a seed bank and reserve storage space in a fodder store for the seeds
- Beneficiaries return to the project the same amount of seed that was given to them so that the project can issue the seed to another farmer
- Beneficiaries could also issue seeds to their neighbours.

A simple process of certification of fodder seeds may help promote local supply to other farmers as they could then be sold in shops and other outlets e.g. vet drug stores.

Animal upgrading

If the breeds kept by the agro pastoralists were genetically improved through Artificial Insemination, fodder production could be more cost-effective through higher milk production or weight gain by the animals fed on the fodder. Care would have to be taken to ensure that improvements in productivity are not undermined by reduced resistance to disease and adaptability to climatic conditions. Also the market system would need to be developed particularly in terms of input supply chains, management abilities of livestock keepers and market outlets must be in place in order to benefit from gains in productivity.

There is a continued need to share experiences and learning with other development actors in this area and develop further evidence of good practice and to co-ordinate with government and other NGOs on the ground to ensure complementarity and co-ordination of approaches.

Conclusion

Fodder production has potential as an income generation activity along permanent rivers, and as a means of improving productivity for agro-pastoral cattle and has the potential to

provide income to pastoral drop outs who often work as farm laborers. When storage facilities are available and producers have the liquidity to enable them to store their product until dry periods, fodder can provide much needed supplementary feed that can be accessed by pastoralists, governments and agro-pastoralists alike.

Extreme care has to be taken not to promote individual fodder production on land that would otherwise be used for pasture as this may undermine pastoral livelihoods and also cause tensions between pastoralists and agro-pastoralists. Consideration also needs to be given to the impact of diverting water resources to fodder and other agricultural production particularly on downstream pasture. As selling grass in the markets is traditionally a female activity, the impact on female traders of large scale fodder sales should also be considered.

In the case of ELMT the fodder production was small scale and had limited impact on pasture land and water resources. As with other activities e.g. supplementary feeding programs the activity did alert pastoralists to the idea that open grazing is not the only way to feed cattle. The collection of grass particularly in areas which are not accessible for grazing e.g. the tick infested areas of Rapsu allowed access to new pasture sources. Fodder has the potential for more nutritious grass per hectare than communal grazing therefore could have a beneficial effect if produced communally as SC/US is trying to do in Southern Ethiopia and could be tried in areas of Kenya.

Annex 1: SELECTION CRITERIA OF CONTACT FARMERS

1. Selection criteria for the riverine fodder beneficiaries: (River Juba)

- Ownership of irrigable farm
- Ownership of an operational water pump
- Ownership of livestock (preferable)
- An active and committed farmer
- Practicing farmer with an existing fodder species; willing to establish or expand fodder of considerable acreage (>1 acre) and ranking high in the production unit in allocating acreages meant for "fodder production"
- Willingness to bale and store hay for strategic drought reserve
- Willingness to reserve a portion of fodder (in plots/basins) to maturity for seed collection
- Willingness to record farm data and share the relevant information with the project
- Generally acceptable in the community
- Women are encouraged to participate

2. Selection criteria for a demonstration unit beneficiary:

- Same as above with the following additions:
 - Willing to provide an extra section of farm for the establishment of a demo unit for training purposes
 - Centrally or strategically located in the production unit for ease of accessibility
 - Willingness to allow other farmers to have access to the fodder plot for learning purposes during the ELMT-project period
 - Willingness to have a variety of other crops
 - Willingness to reserve a portion of the demo unit as a seed bank