

**Good Practice Note**

# **Building Fodder Security in Rural Areas**



**REGION** : South Asia  
**COUNTRY** : India  
**STATES** : Andhra Pradesh & Maharashtra  
**DISTRICTS**: Six

**SOUTH ASIA**  
**Pro Poor Livestock Policy Programme**  
A joint initiative of NDDB and FAO

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## Building Fodder Security in Rural Areas:

### *Validation of Traditional Knowledge on Fodder & its Reintegration into Livelihoods*

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# 1. Introduction

**A**nthra is a not for profit non government organisation started by a team of women veterinary scientists in 1992. It is a resource, training, research and advocacy centre for bio diversity based livestock production in the wider context of people's livelihoods. It works with marginalised communities, *dalits*, *adivasis*, pastoralists, and landless groups, small and marginal farmers, especially with women from these communities.

Anthra was engaged in a detailed action-research project to document and validate the traditional knowledge of farming and pastoralist communities with respect to feed and fodder between 1996 and 2003, in different agro-ecological contexts in the Indian States of Andhra Pradesh and Maharashtra. Thereafter, Anthra has been proactively involved in integrating and promoting these practices widely amongst farmers and pastoralists in different parts of the two States. Since 2003 application and integration of traditional knowledge on fodder has been taken up to enhance fodder availability in the rural areas.

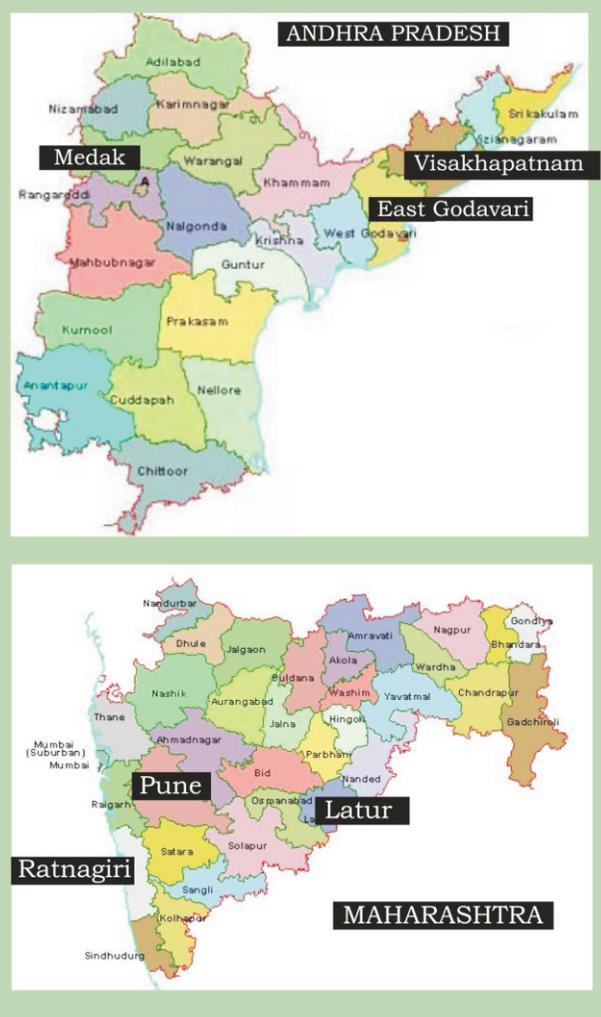
## Location

The research project for documentation was implemented in 6 districts (East Godavari, Medak and Visakhapatnam in Andhra Pradesh and Pune, Ratnagiri and Latur in Maharashtra), 18 mandals and 54 villages in the two States.

## Context

The documentation and action research was conducted in three different agro ecological zones i.e., semi arid regions, hilly forested regions and coastal regions of Andhra Pradesh and Maharashtra. The major livelihoods of the rural communities in these regions are agriculture, livestock rearing, wage labour and forest based livelihoods which vary from region to region. The villages selected were mostly remote villages; some do not have the basic infrastructure facilities like roads, schools, markets and hospitals. Literacy levels are very low. There has been a huge fodder and drinking water scarcity in summer season.

**Figure 1: Project Location**



## 2. Key Elements of the Good Practice

### **Objective of the Research**

The major issues explored included an appraisal of local feed and fodder used in the past and in the present, the seasonal difference in feeding practices, the traditional evaluation or assessment of a feed by farmers, the palatability and availability (both temporal and actual quantity over time) of fodder. In addition, the project looked at ways of storing feed and fodder, and special feeding practices during disaster situations. Mapping grazing routes and practices, and watering practices was an integral component of the research.

### **Communities Reached**

Poor and marginalised farmers, livestock rearers, *adivasis*, *dalits*, shepherds and pastoralists including both men and women were the target group. 540 households were involved directly in the action research and many more households were reached through meetings and campaigns as part of the dissemination of knowledge.

### **Qualitative Indicators**

Participatory documentation of the wealth of traditional knowledge across different agro-ecological regions, communities and ethnic groups, genders and age-groups ensured that the “sum of the whole” was much greater than the individual pieces of information. The participatory strategy, which placed emphasis on historically marginalised communities and genders, ensured that these community members got access to information / knowledge and practices which they are otherwise denied, in light of social discrimination and traditional community hierarchies. People's self-respect and dignity in their own heritage and knowledge enhanced significantly. Many community members were inspired to adopt and re-integrate some of these practices into their ongoing livelihoods. Scientific documentation and monitoring of lopping practices, served to challenge biases and myths about the practice, and consolidate information on effective lopping practices.

Current and future generations have access to their heritage of traditional knowledge in written form, which will sustain, even after the passing on of the elders in their community.

### **Quantitative Indicators**

Many farmers began to diversify their cropping, with millets, pulses, oilseeds, resulting in increased availability of crop-residues and by-products used to feed the animals and poultry. Nurseries of traditional fodder varieties were developed and saplings distributed to farmers who planted them on their farm bunds, near their houses and also on the village common lands (forests and non-forests). Traditional grass species were cultivated by farmers on their field bunds, as also around village tanks, which were de-silted, and other commons. Shepherds volunteered to develop their community lands by planting traditional fodder trees and grasses.

## Innovation in the Good Practice

The most critical innovation was that documentation did not occur as an externalised process of recording information by outsiders, but was an organic process involving diverse members of the community along with “non-local community” members. It facilitated several networks of learning and sharing both horizontally and vertically. It stimulated practice of documentation, self-analysis and reflection within the community. It enabled scientists trained in the formal paradigms of “western science” to engage with “peoples science” and help validate this body of knowledge which goes beyond the narrow and limited definitions of “monetary value’ being placed on traditional knowledge systems.

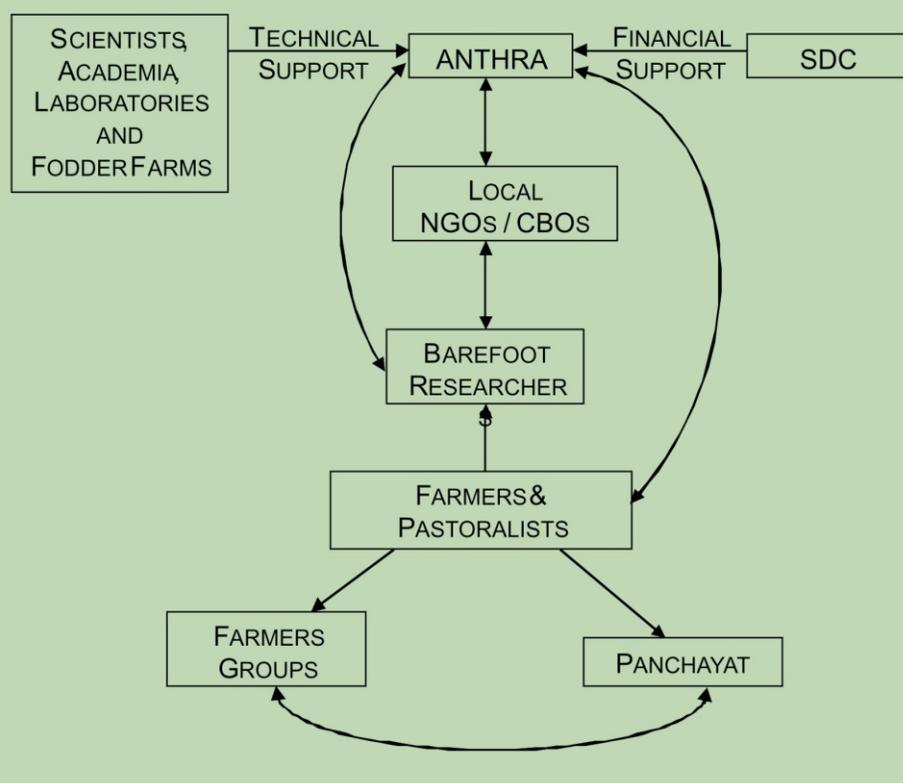
## Actors and their Roles

Anthra took the lead in conceptualising the participatory research but it evolved and took shape with the active participation of key community members such as community documenters, healers and elders from different sections of the community. Anthra along with knowledgeable members of the community took responsibility for training the community researchers to document the oral traditions.

Phase I and II of documentation, validation and dissemination were supported by IC-SDC<sup>1</sup>. Phase III of farmers active participation in reintegrating practices into their livelihoods was partly supported by the Department of Science & Technology, Government of India, with Rs. 10.69 lakhs.

Local NGOs and CBOs had provided all the support for the participatory research, they helped in selecting the barefoot researchers and the selection of villages which were part of their work areas. They provided their office space for meetings and workshops at the local level. Most of all they provided the linkage with the farmers.

**Figure 2: The Practice**



<sup>1</sup>Intercooperation - Swiss Development Corporation

Community barefoot researchers (Box 1) along with members of Anthra documented the information from farmers using various methods such as informal interviews, participatory visualisation exercises, observational walks, identifying plant specimens and making herbariums of the same, photo-documentation. The team of Anthra and key community members jointly analysed the information and took it back to the community.

### Box 1: Community Barefoot Researchers

These were men and women selected from the local communities to participate in the action research. Their basic work was research and documentation. They were selected through the local NGO /CBO partner and were trained in basic methods of documentation. The criteria for their selection was basic literacy (reading and writing), capacity to communicate, build rapport with the farmers and have a basic knowledge about the rural scenario and livestock rearing. They were paid an honorarium during the project period by Anthra through the local NGO/CBO partners.

Farmers representing different sections of the community - caste, land holding, gender, age-group, participated in sharing their knowledge with respect to fodders grazed upon by different species, their seasonal availability, general availability, palatability, effects on animals, reasons for their disappearance etc. They shared the reasons why fodders had disappeared, and the problems they experienced because of fodder scarcity. Farmers actively participated in pilot experiments to validate the “effects” of certain fodders, as also to assess the impact of lopping on trees. Finally they brought about changes in their own livelihoods to re-integrate these fast disappearing practices and became innovators from whom other farmers could learn.

Scientists from formal research institutions, experimental fodder farms as also independent researchers and academicians provided technical guidance for the research protocol, identifying fodder species and participated in periodic review meetings. Some of the scientists who were on Anthra's technical committee on fodder were already involved in fodder and feeding trials and had brought in their experience to guide the lopping and feeding trials undertaken by Anthra.

Computer Software personnel designed a user-friendly software using Oracle, to store and retrieve the information as and when needed. The information was documented by the field documenters from the farmers in local language and it was first translated into English before entering into the computer program. This is still used by Anthra and the information from the database was also consolidated and brought out as publications<sup>2</sup>. Laboratories - helped in testing the nutrient content of traditional fodder varieties.

There was continuous and close interaction between all the different members.

<sup>2</sup>The information generated through this action research project has been brought out as several booklets and books in Telugu, Marathi and English. The recent one in English is named “Plants used in Animal care”. There is a book in Telugu titled: 'Sahaja Metha Sampada' (Natural Fodder Wealth) and a book in Marathi titled 'Shyadrithil Chara Sampathy'. These are available with Anthra at their Hyderabad and Pune offices.

## 3. The Actual Practice

The entire experience with traditional fodders can be broadly divided into 3 phases:

- i) Phase of Documentation: 1996-1998
- ii) Phase of Validation and Dissemination 1998-2003
- iii) Phase of Farmers active participation in reintegrating practices into their livelihoods (2003 to current)

### **Phase I of Documentation**

The research methodology involved the following:

1. Designing non-structured interview checklists to record information from farmers and knowledgeable elders.
2. PRA methods like resource mapping, problem ranking, matrix ranking of fodders, their availability, palatability and effect.
3. Preparing herbariums of fodder species, for their identification and record.
4. Photo documentation.
5. Developing software to store and retrieve the information
6. Data entry and generating consolidated information

This phase resulted in generating a database of information on the traditional knowledge on fodders, which could be accessed based on various needs (species, availability, palatability etc)

### **Phase II of Validation and Dissemination.**

During Phase 2, a validation protocol was evolved. Fodder varieties were indexed across region and species, categorised according to their traditional usage and further ranked based on palatability, availability and toxicity factors. Secondary literature provided information on nutritional values of the fodder varieties and their use in other regions. Species, which had little or unknown nutritional values, were tested for digestive crude protein (DCP) and total digestive nutrient (TDN) values. Three of the ranked fodder varieties were also tested through feeding trials. Traditional lopping techniques were also studied to unravel their effect on the production of biomass and tree growth.

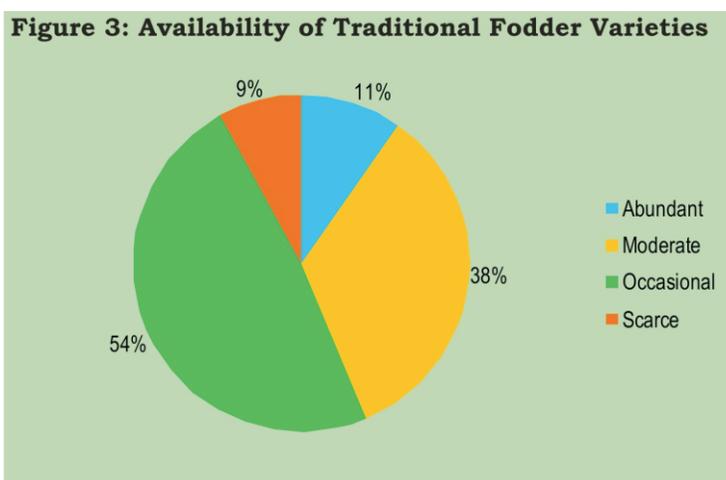
Finally information was consolidated in Telugu / Marathi in the form of charts, posters, booklets and photographs and disseminated to a wider audience (farmers, development workers and scientists). The dissemination was targeted at farmers mostly the younger generation who were gradually getting distanced from the traditional knowledge. Campaigns were held at the village level to exchange the

knowledge of one area to other areas between the farmers. Posters, charts, photographs and slideshows were used to disseminate the knowledge in these campaigns. Another major part of dissemination was through trainings to animal health workers and development practitioners from government and non government organisations who were involved in fodder development. Farmers were rediscovering the knowledge of their fathers and forefathers related to feeds and fodder and feeding practices and incorporating some practices which were suitable for them.

### **Major findings of Phase I and Phase II**

A major finding of the research was the dramatic shift in cropping patterns in all areas from food to cash crops. This resulted in a drastic change in diets and reduced variety and quantity of feed available for livestock - especially a reduction in the quality and quantity of crop residues. This shift in cropping pattern was accompanied by a decline in public grazing lands and increase in private lands and fallow, resulting in increased hardships for marginal farmers *vis-à-vis* grazing. Another perceptible shift was the replacement of perennial grasses by annuals. A disturbing observation was a general loss of knowledge on fodder types amongst members of the younger generations. These shifts were largely linked to and embedded in the larger changes occurring in agriculture, as a response to policies that had enabled capital-, resource- and chemical-intensive green revolution agriculture to flourish and predominate over traditional ecological agriculture practices.

A total of 440 traditional fodder varieties in Andhra Pradesh and 298 in Maharashtra comprising trees, shrubs, herbs, climbers, grasses and crops were documented, of which 9-11% were abundantly available, 28-38% were available moderately, 43-54% occasionally available and 9% were scarce. Many of the fodder varieties



documented as scarce had become so due to commercial harvesting. Many fodder types that were very palatable to livestock, in fact, were found to be substantially available. A similar distribution was found in both the states.

Large ruminants feed mainly on grasses, weeds and crop residues of cereal and legume crops. In feed-scarce situations they also feed on tree leaves such as *Melia* composite (Ghora Neem). Goats mostly browse on leaves of trees, herbs, shrubs and creepers. They are also fed on lopped leaves of trees such as *Acacia nilotica* (Babul). Shepherds hire these trees for a period of 2-3 months (February-April)

and lop the leaves and fruit which are fed to their sheep and goat flocks. Sheep graze on grass species, crop residues and are also fed bran, husk in special physiological conditions.

The composition of feed of large ruminants across seasons appears to be:

- Crop residues and lopped leaves of trees in summer (April-Mid-June)
- Natural Grasses and herbs from June to October
- Leaves of Shrubs and Trees from October to March

Farmers have a definite knowledge about the palatability, value and traditional effect of the fodder species eaten by all types of animals. From their experience they say that certain types of fodder increases milk yield, certain species give strength and certain others help for faster growth in kids. The farmers also have knowledge about the side effects of certain fodder species.

Examples of this include:

- ✧Animals fed on Jerripothu gaddi (*Panicum repens*), a grass species recorded from Medak district, Andhra Pradesh, results in higher milk yields in buffaloes .
- ✧Goat kids fed on Parimi (*Zizyphus oenoplia*) leaves, grow faster according to farmers from East Godavari, Andhra Pradesh.
- ✧Leaves and fruit of Babul/Nallatumma (*Acacia Nilotica*) increases the growth rate and milk yield in lactating does.
- ✧Excessive intake of “Gatharekulu/Adavi ulli” (*Urgenia indica*) results in bloody diarrhoea

In Andhra Pradesh 81 fodder species consumed by bovines, 104 varieties eaten by goats and 50 varieties eaten by sheep were prioritised, of which some 70 varieties were tested for their nutritional values. There was close parity between the traditional effects reported by the farmers and the nutritional values recorded after testing in laboratories. 5 different field trials were conducted to validate/assess traditional ways of utilising fodder in Andhra Pradesh and Maharashtra. We describe one of these traditional practices, which we studied, which was the lopping of *Acacia Nilotica* trees.

### **Lopping trials on Acacia Nilotica**

In most areas of Andhra Pradesh, shepherds lop select fodder trees between February and April each year. In Medak district where this trial was conducted, the rearers usually lop *Acacia Nilotica* and *Albizzia lebbeck*. Trees are lopped every alternate year, allowing for sufficient vegetative growth. The objective of this trial was to assess the effects of lopping, on the growth of the tree as also to estimate the amount of biomass obtained through lopping, which was fed to the animals. This trial was conducted between February and April 2002, in Chennapur village, Sivampet mandal, Medak district. Four farmers volunteered to participate in the study, and agreed to allow the Anthra researchers to observe and monitor the traditional lopping of Acacia

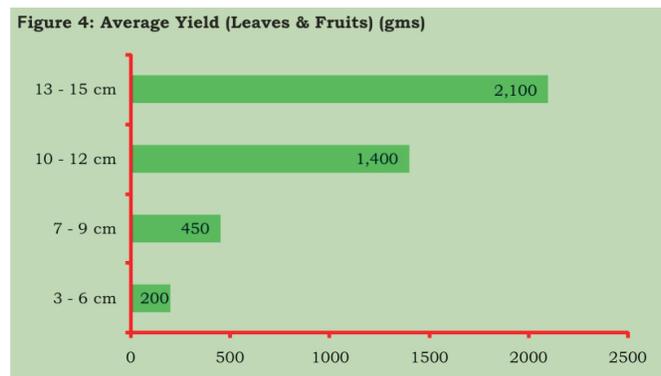
nilotica tree. While it was planned to re-monitor the trees in 2004, this had to be abandoned as many of the trees had been sold /felled by their respective owners or by the Panchayat.

**Objective:** To measure the biomass yield from lopped *Acacia nilotica* trees and to analyse the impact of lopping on the vegetation of the tree.

**Hypothesis:** Correct lopping does not harm the tree but enhances its biomass production.

**Methodology:** 4 farmers participated in the study in 2002. The first farmer owning 133 goats leased 18 trees, the second farmer owning 71 sheep leased 13 trees, the third farmer owning 168 goats leased 12 trees and the fourth farmer owning 35 sheep leased 9 trees. In total there were 52 trees to be lopped to feed 301 goats and 106 sheep. Of the 52 trees, 30 were previously lopped and 22 were being lopped for the first time.

When the branches were lopped, the girth of the lopped branches was measured at the cut end, and the weight of leaves and fruits obtained from the branch weighed. In this fashion the average weight of leaves and fruits obtained from different sized branches was standardised. It was found that the diameter of the cut-end of the lopped branches, ranged from 3 cm to 15



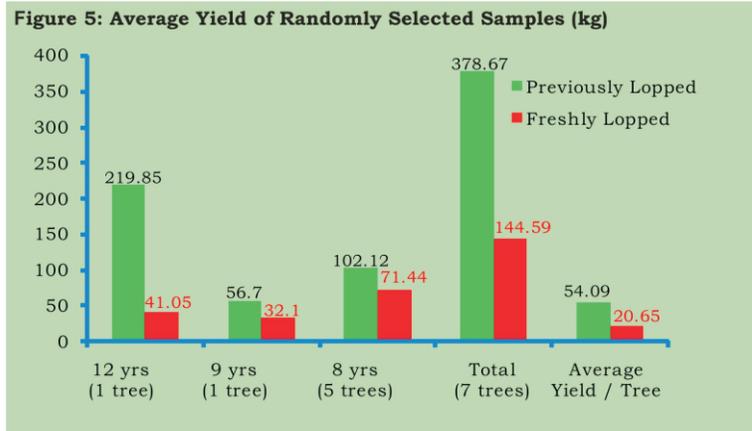
cm. The branches were divided into 4 sub-groups based on the diameter of the cut-end: 3 - 6 cm, 6 - 9 cm, 9 - 12 cm and 12 - 15 cm. In this way an average yield of leaves and fruits for each sub-groups was estimated (See Figure 4).

The total branches lopped each day by the shepherd, were counted, measured, and according to the diameter categorised into one of the 4 subgroups. The fodder yield was calculated by multiplying the total number of branches in a group with the standardised fodder yield (leaves and fruits) estimate factor of that sub-group. In this fashion, the total fodder yield of a tree for the entire period of lopping which was 39 days, was estimated. The fodder yield of 52 trees was recorded systematically each day till the shepherds completed full lopping of the tree.

## Results

The total fodder yield obtained from 52 *Acacia* trees was 4,269 kgs. This fodder was fed to 301 goats and 106 sheep, or 407 small ruminants. This meant that one small ruminant was consuming an average of 268 gms of fresh fodder per day. Based on the above total fodder yield estimates, it was calculated that one *Acacia* tree yielded an average of 78 kgs during the 39 days period of lopping, or 2 kgs of green fodder per day up to 39 days.

Selective comparison of previously lopped trees and freshly lopped trees (trees lopped for the first time) of the same age was carried out and it was found that the average total yields of previously lopped trees were higher than the freshly lopped trees and is presented in Table 2 and Figure 5. We also found that the number of cut-ends in the previously lopped trees was significantly higher than the freshly lopped trees, indicating that the effect of lopping had resulted in increased branching in subsequent years.



**Table 2 : Average Total Yield (Previously/Freshly Lopped)**

Age of Tree	Lopping Status	No. of cut ends / yield kg				Total Fodder Yield (Kg)
		3 - 6 cm	7 - 9 cm	10 - 12 cm	13 - 15 cm	
12 Years	Previous	5 / 1	71/31.95	72/100.8	41/86.1	219.85
	Fresh	1/0.2	13/5.85	19/26.6	4/8.4	41.05
9 Years	Previous	5/1	18/8.1	13/18.2	14/29.4	56.7
	Fresh	3/0.6	14/6.3	12/16.8	4/8.4	32.1
8 Years (average of 5 trees)	Previous	16.8/3.36	55.2/24.84	34.2/47.88	12.4/26.04	102.12
	Fresh	1.2/0.24	20.4/9.18	24.8/34.72	13/27.3	71.44

The field trial revealed that traditional methods of lopping *Acacia Nilotica* tree are beneficial to the animal as they provide crucial feed, with high protein content, during a critical period in the year. The study also revealed that the traditional lopping does not damage the tree, and in fact enhances branching and leaf and fruit production. However there is large variation in average fodder yield per tree, based on the age, whether a tree has been lopped previously or not, the soil on which it grows, rainfall, as also the lopping management practices.

Dried lopped branches were used as fuel wood, which reduced the work burden for women in terms of collecting fuel wood.

### **Phase III: Dissemination of information and consolidation of activities during 2003-08**

Farmers in different parts of Andhra Pradesh and Maharashtra, actively participated in enhancing their fodder resources through changing their agriculture cropping practice (non-food cash crops to food crops which yield a rich fodder crop residue, traditional fodders cultivated on private and public lands.)

Anthra has been actively disseminating the learning's and practices to farmers and pastoralists. One of the earliest interventions made by women farmers in East Godavari District has been to consciously diversify their cropping with multiple millets, pulses, oil seeds, vegetables, as well as other ecological farming practices, which has enhanced the quantity and quality of food grains as also crop-residue and crops by-products available for feeding livestock and poultry. Conserving traditional varieties of seeds through community seed banks (Box 2) and making these available to local communities, has been a core element of the intervention. This strategy has subsequently been adopted by innovative farmers in all the districts where Anthra has active community-livelihood program (9 districts in Andhra Pradesh and 4 districts in Maharashtra). As of June 2008 there are about 600 farmers in these districts, who are actively involved in transforming their agriculture practices to mixed cropping.

#### **Box 2: Community Seed Banks**

These were initiated in East Godavari District with the *adivasi* communities. The main objective was to conserve the seeds of traditional food crops and make them available to the members of the community. The members of the community seed bank contribute the seeds they have and exchange other types of seeds they need and return double the quantity of seeds borrowed each time. This was initiated at a time when non food and fodder yielding crops like tobacco, cotton and tapioca have widely replaced the traditional food crops. The intention was to diversify the food crops (millets, pulses, oil seeds and vegetables) and to enhance the quality and quantity of food and fodder for livestock and poultry.

The second major practice that has gained wide popularity has been pastoralists and farmers growing traditional fodder trees and natural grasses on field bunds in their private lands. The trees in popular demand include *Acacia nilotica* (Babul/Nallatumma), *Albizia lebbek* (Shirish/Dirisena), *Dalbergia sisoo* (Sheesam/Sisoo), and the grasses which have been sown include *Dicanthium annulatum* (Jinjva/Eti gaddi), *Sehima nervosum* (Sheda/Telagaddi) and *Panicum repens* (Reda/Jerriphotu gaddi). Community fodder nurseries to propagate the species were established with the contribution of the local farmers. Shepherds and farmers are actively involved in collecting fodder seeds as also conserving them.

In Chennapur village, 67% (2,150) fodder trees of 3,200 saplings planted in 2005-2007 survived. Farmers began to lop the *Acacia nilotica* trees in March 2008 (after 3 years), to feed their sheep and goats. A survey carried out in the year 2007 revealed that all the 42 participants who volunteered to the part of the fodder enhancement project now owned one or other type of livestock; earlier only 50 % of them owned livestock. There was a significant increase in the number of buffaloes and goats in the village. The households were involved in cultivating fodder grasses in their private lands and also shepherds have planted fodder trees in their private lands as well as in the common lands.

In Avancha, 40% (802) fodder trees of 2,014 saplings planted in 2006 and 2007 survived. Farmers have not started lopping these trees, as they are still young and, the trees will be ready to be lopped by March 2009.

The above varieties along with Neem (*Azadirachta Indica*) trees were planted around tank beds in both villages as well. A considerable number survived.

Migratory shepherds (Box 3) in Satara district, Maharashtra, who were back home after the end of the migratory cycle, evinced interest in cultivating fodder, and about 10 of them came forward to cultivate different fodders such as *Phaseolus aconitifolius* (moth bean), *Vigna unguiculata* (cow pea), and *Sorghum vulgare* (sorghum) on their own fields during the monsoon of 2007. This is historical as it is possibly the first time that migratory shepherds of the region have actually volunteered to grow fodder to meet the enhanced requirements of their flocks.

### **Box 3: Migratory Shepherds of Satara District**

Migration in search of fodder and water for sheep and goat has been a traditional practice, because there is a huge shortage of fodder especially from November to June months. During the rainy months the sheep and goats graze on the fodder available in the common lands in their areas. These shepherds own very little land, may be 2-3 acres / household and it is mostly rainfed, which gives only one crop depending on the rain. They usually cultivate some food crops during the rainy season to get food for their families. There is no water available throughout the year to cultivate fodder in their lands and traditionally they do not cultivate fodder for sheep and goat; some of those who do cultivate fodder use it to feed the buffaloes.

## **Silvipasture development on community lands owned by Shepherds**

In 2007, Shepherds of Peddagottimukkala (PGM) village, Medak district showed interest in developing their community land with traditional fodder trees and grasses. They got interested in this, when the results of another study conducted by Anthra observing weight gain of lambs across different villages, was presented to all shepherds in the same year, where they realised that the weight gain of lambs in their village, was significantly lower than the weight gain of lambs in other villages. A major reason for this appeared to be the comparative non-availability of diverse fodders in PGM village as compared to other villages.

40 shepherd households in this village own temple land measuring 5 acres in the village, of which 15 households continue to own sheep and goats. Prior to planning the intervention on this land, rearers and non rearers sat together and discussed the benefits / disadvantages of developing the land. In this meeting the non rearers and rearers arrived at a consensus that the creation of a common water facility on the land, would be useful for all the households, and could be used for the regularly celebrated Mallanna and Beerappa festivals. If this happened, the non-rearers did not object to the land being developed with multiple trees – primarily of fodder value. The community passed a resolution to this effect. The community also agreed that they would pay the monthly electricity charges and would contribute 25% of the total cost of developing the land.

The community decided that the land would be developed in a phased manner, as their animals still continued to depend upon this resource for fodder. In 2008 the shepherds agreed that 1.5 acres of land would be developed in the first phase. The

different activities undertaken included land levelling, application of farmyard manure, fencing the area to be developed, and digging a bore well along with a water tank and trough.

In July 2008 when the rains were in full flow, *Albizia lebbeck* (100), *Azadirachata indica* (100), *Acacia nilotica* (170 of which 70 were saplings and the remaining were 100 seeds) were planted. There is a large diversity of natural grasses which are growing in the protected area and the predominant ones include *Dicanthium annulatum* (Gennela gaddi), *Cynodon dactylon* (Garika), *Cyperus sp* (Thuga), *Leptochloa*, *Sporobolus*, *crysopogon* (Puthika gaddi), *Digitaria sanguinalis* (Uvla gaddi), *Eragrostis pilosa* (Tella burka gaddi), *Commelina benghalensis* (Nagarsai alam) and legumes of *Aeschynomene indica* (Jilugu) and *Dolichos sp* (Adavi ulava). Harvesting of the seeds was done in the months of November and December 2008 and distributed to interested shepherds who planted these varieties on their own “private grazing lands” or known as “*woralu*”, or on field bunds. Grass was not harvested, but allowed to flower so that the seeds could be collected. After that buffaloes and sheep were allowed to graze.

A water trough built on this land is a major source of drinking water for sheep and goat which pass through this route for grazing.

The community decided that sheep should be prevented from grazing on these lands for the first six months. After six months sheep lambs can be allowed for grazing for an hour. Adult sheep can be allowed in the second year, and in the third year goats can be allowed for browsing. Trees can be lopped only after 3-4 years.

This particular intervention was the result of Anthra's continuous efforts of organising the community into village level *sanghams* with regular meetings, and enabling them to access animal health services in terms of vaccinations and de-worming from the local government veterinary hospital.

The best positive aspect of this intervention is the increased awareness amongst the shepherds to increase the fodder base in the village for their sheep and goats and their collective decision of donating their own common lands for this purpose while sharing 25% of the costs as well as the ongoing maintenance charges. This type of collective interventions of the communities with proper technical guidance combining traditional knowledge with modern scientific knowledge and also financial support from outside organisations if replicated would contribute towards enhancement of fodder through common land development. This is a major step towards developing the community lands in the context of reduced grazing lands and fodder resources.

## 4. Lessons Learnt & Opportunities for Replication

The process of documentation, validation, dissemination and practical applications were vital in the effective re-integration and revitalisation of traditional knowledge systems pertaining to fodder. The methodology used ensured the complete participation and involvement of the local communities who bring in their traditional knowledge and experience. The scientific and traditional validation methods have shown remarkable similar findings, especially regarding the nutritive value of specific grass and tree fodder. This has helped to break the myth prevailing in the mainstream regarding the fodder value of traditional species.

1. Fe/male farmers have sound traditional knowledge regarding nutritive value of different fodders and grasses. Community-led action research coupled with scientific validation methodologies is important in blending people's knowledge with mainstream scientific knowledge. The research outcomes have enabled a positive shift in the attitude towards traditional fodder varieties by the various stakeholders.
2. Traditional feed and fodder species are more suitable for rainfed areas compared to new fodder varieties being introduced that need irrigation facilities. Government policies as well as top down interventions can be counter productive if not based on the needs and requirements of the livestock keepers as shift towards non food cash crops, planting timber varieties in forests etc resulted in reduction in fodder resources for the livestock.
3. Documentation of traditional knowledge concerning plants, feed and fodder species has to be undertaken so that this knowledge is not lost and future generations can bank upon documented resource base. This needs concerted efforts, financial and human for a considerable period of time and can lead to the revitalisation of traditional knowledge systems both by individuals and as a collective, which in turn, can result in positive changes in their livelihood systems
4. Lopping of branches of trees undertaken in traditional ways facilitates enhanced growth of branches leading to more fodder production demonstrating that the traditional practice of lopping of trees in forest areas does not harm the forest in any way.
5. There is scope for the Forest departments to plant fodder yielding traditional trees with active community participation instead of growing timber yielding species.
6. This experience shows that the tribal community has been empowered to take back control over their own knowledge and related genetic resources, and utilise it in ways that are making a positive impact on their livelihoods. Therefore, community based institutions are best suited to conserve and propagate traditional species of feed and fodder.

### **Opportunities for Replication & Recommendations**

In the context of severe fodder shortage existing in our country, enhancing the fodder base and make it available around the year should be the priority of all livestock development agencies. For this, replicating the entire process of research,

documentation, validation and dissemination as Anthra has done may not be feasible for other organisations. What is advisable is to adapt the approach of action-research and a precondition for this is to recognise the value of the traditional knowledge and have a sincere commitment to ensure that the traditional knowledge is restored and communities take the control of the knowledge. Organisations working for livestock development such as Animal Husbandry department and NGOs should focus on interventions involving traditional knowledge rather than a top down imposition of class room knowledge in the name of scientific knowledge. Fodder development need not always be done by promoting irrigated varieties of grasses or other fodder species which resource poor households cannot adapt. Introducing irrigated fodder varieties in dry land regions can be detrimental to the environment depleting the scanty water resources of the area. Animal husbandry department and agricultural and veterinary universities must invest in developing fodder banks with seeds of traditional fodder varieties.

Government departments like forest department and Rural Development Ministry implementing watershed programs have to make efforts to involve traditional fodder varieties which are already proven as good fodder while doing the plantations. Forest Department can take the results of lopping trials, which prove that lopping the branches of trees for fodder in a traditional method will not destroy the trees, instead it will allow more vigorous growth of branches, and adapt a positive outlook towards shepherds lopping trees in the forests. A community lead social fencing also can be initiated to educate the young farmers on sustainable traditional lopping practices in common lands and forest lands involving the local shepherds, gram Panchayats and forest department.

In order to make the traditional knowledge acceptable and valued by the educated practitioners and scientists for whom it is not on their agenda one possible method would be to lobby for incorporating it into the university curriculums and the second and immediate option is to disseminate the uses widely at the scientists/academicians and government officials level. The scientists who were part of the technical committee to guide Anthra in the validation process have highly appreciated the efforts put in by Anthra and the outcomes of the trials.

The NDDB-FAO **South Asia Pro-Poor Livestock Policy Programme** (SA-PPLPP) SA PPLPP is a unique livestock development program that aims to 'to ensure that the interests of poor livestock keepers are reflected in national as well as international policies and programs affecting their livelihoods'. It endeavors to do so by a) creating spaces for and facilitating dialogue among the actors playing a direct and indirect role in the livestock sector of South Asia, and b) drawing from and using lessons from field experiences to influence livestock-related policies, programmatic and institutional changes towards the benefit of poor fe/male livestock keepers in the region.

*To access SA PPLPP publications and other information resources, please visit our website at <http://www.sapplpp.org>*

**Anthra** is a resource group that was started by a team of women veterinary scientists to address the myriad constraints that faced rural livestock rearers. It is registered as a trust with an all-women governing board. The initial aim of the organization was to search for alternative systems for delivering livestock health and management practices to poor people, especially women in rural areas. Today, Anthra is a resource centre offering training, research and advocacy initiatives in the areas of livestock, bio-diversity and people's livelihood.

Anthra aims to work for sustainable livestock production within the larger framework of building people's food sovereignty and livelihood security. The focus is on farming and production systems, crops and fodder varieties, livestock and plant genetic resources, medicinal plants and health care traditions, and land and water use. Anthra works mainly with marginalised communities - *dalits*, *adivasis*, pastoralists, landless groups, small and marginal farmers, and, especially, women from these communities. Presently, Anthra works with such communities in the states of Andhra Pradesh, Maharashtra, Chhattisgarh and Karnataka. Anthra has two operating offices in Hyderabad and Pune.

*For more information on Anthra, kindly visit their website at <http://www.anthra.org/>*

## About this Good Practice Note

This note highlights the importance of engaging members of the community in documenting the wealth of traditional knowledge regarding feed and fodder systems across different agro-ecological regions. This process enhanced their self respect and dignity in terms of their heritage and inspired them to revitalise and reintegrate some of these practices into their ongoing livelihoods strategies.

The good practice also focuses on the necessity of developing synergies between scientific and community validation methods regarding nutritive value of traditional species in comparison to improved varieties of grasses and fodder. The similarities in the findings have helped to break the myth regarding the fodder value of traditional species.

## SOUTH ASIA Pro Poor Livestock Policy Programme

A joint initiative of NDDDB and FAO

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