

Improving Goat Production Systems

Processes Emerging from the Experience of
AP Drought Adaptation Initiative (APDAI)



THE WORLD BANK



Commissioner, Rural Development
Government of Andhra Pradesh



Why Goats?

Goats convert the scrub biomass into incomes for the poor, manure for the landscape and supply meat to the growing markets. The many benefits of goats and the resilience of its production system make them an essential part of drought adaptation package.

Goats, though commonly accepted as a poor household's only liquid asset, are often seen as a 'problem' by many and in effect, there is not much support for this largest poor-people's private enterprise.

This publication provides an overview of processes to understand and strengthen the goat production systems drawing from the experiences of AP Drought Adaptation Initiative (APDAI)¹.

The experience has evolved on the platform of Mandal Mahila Samakhya (MMS), a Mandal level federation of women self-help groups. APDAI organized the goat rearers into common interest groups (CIGs) and established service delivery mechanisms and production system improvement on these institutional platforms.

Understanding constraints of goat production systems and setting objectives

The dominant perceptions are from the opponents - people who consider goat rearing as a threat to horticulture/ plantations, crops and forests. It is important to overcome this bias and understand 'goats' as a production system that uses natural resources. It is also important to understand goats from the perspective of goat rearers.

'Area Approach' to strengthen goat production systems

Conventional development approach was to distribute goats on subsidy through loans (by banks or through SHGs). Services related interventions were limited to occasional vaccination and de-worming. Goats purchased through loan only are insured; insurance products are not generally available for others.

The emerging experience from AP DAI strongly recommends a departure from 'distribution/ financing of animals' approach to an 'Area Approach'. Systemic interventions in a geographical area in terms of establishing appropriate health care service delivery, organising rearers, insurance and other support systems

Box 1: Resilience and Drought Adaptation

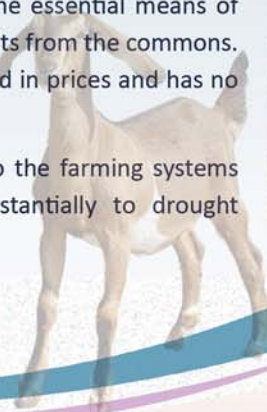
Increased frequency of droughts, high intensity and unseasonal rainfall are projected to be the rule rather than an exception with the changing climate.

Goats and sheep, balance the crop loss - moving-out during a good agriculture year and moving-in when the crops fail. They convert residual biomass into incomes and being liquid assets, provide a means of balancing the negative impacts of droughts.

Unseasonal rains, especially in early summer, will enhance their productivity as biomass scarcity is reduced.

For the poor and landless, they are the essential means of generating livelihood incomes and assets from the commons. Meat has shown a steady upward trend in prices and has no market risk.

Goats and sheep bring in resilience to the farming systems and livelihoods; and contribute substantially to drought adaptation in rainfed areas.



¹ AP DAI is a pilot program to evolve various drought adaptation measures. It was supported by the World Bank and anchored by the Rural Development Department of the Government of Andhra Pradesh. The pilot was implemented in Mahabubnagar and Anantapur districts of Andhra Pradesh. It was founded on the platforms of Mandal and Village level Women Federations (MMSs), facilitated by Society of Elimination of Rural Poverty (SERP). WASSAN extended technical and process facilitation support to the initiative. For more details, visit www.wassan.org/apdai

enhance productivity of goats as a system. Initiatives to enhance fodder availability in a given area increase the stocking capacity. Federations of SHGs (Mandal Mahila Samakhya) provide a strong networked institutional base to start off any initiatives in a larger geographical area.

Identifying the Areas of Operation

In a Mandal, the density of goats varies and, most often, there would be pockets of higher concentration of goats usually determined by the availability of commons, forests or fallow lands. The livestock census and village land use data may provide a basis for discussion with the Mandal Mahila Samakhya for selection of villages. Such areas need to be carefully demarcated along with the approximate boundaries of the grazing areas through participatory mapping on a topo-sheet. The intervention need to be focused in such areas.

Situational Analysis

Any initiative on improving the goat production system must start with an intensive interaction with the goat rearers. The Mandal Mahila Samakhya are good platforms to open the program as they would have several of the rearers as their members. These MMS can also nurture the common interest groups. Situational analysis in the identified areas, preferably along with a sub-committee of the MMS and the local veterinary doctor in the Department of Animal Husbandry provides useful insights for designing the program. Such analysis also serves as a benchmark data.



Box 2:

Interactions and initial situational analysis in AP DAI program villages (in Mahabubnagar district) brought out the following major issues:

- ❖ Low birth weights, often less than 2kgs - Kids with low birth weights are more vulnerable to diseases
- ❖ High levels of kid-mortality i.e. 25-30%
- ❖ Low weight of animals at the time of sale, which is around 8-10 kg
- ❖ Lack of access to health services; vaccination and de-worming are sporadic
- ❖ Lack of supplementary feeding practices
- ❖ Low availability of bio-mass
- ❖ Prevalence of share-cropping (in goats)
- ❖ Lack of access to insurance services
- ❖ Lack of social dignity
- ❖ Predominance of individual marketing within the village

The situational analysis should also profile various management practices and identify the knowledge, practice, services and resource gaps. The reasons or causes of problems identified are important and technical inputs to diagnose the problems are very useful. The situational analysis may document and analyse the breeds, biomass/ grazing land availability, feeding practices, kid management, mortality rates, morbidity, and access to health care services, ethno-veterinary practices, market linkages, body weights, and ownership of assets. Age, at which the animals are sold and body weight are also important.

Assessing the Density of Goats

The population of goats is often a conflicting issue. Assess the present density of goats and through a focused discussion with the goat rearers and few farmers, arrive at a subjective judgment on whether the present density is high/ medium/ low duly considering the biomass availability. If the density (also considering the goats coming into the grazing area from outside the village) is high or medium – the program must be conscious of not increasing the goat population further.

Box 3: The implications of the observations and the problem areas are as follows:

Issue	Implications
Low productivity levels	<ul style="list-style-type: none"> ❖ Generally reflected in low body weight gains and low kidding rates (i.e. number of kids per 100 animals per year). ❖ Results mainly from low birth weights, high mortality, low weight gains and fodder stress. It is a cumulative impact of biomass scarcity, morbidity, management practices and access to services.
Lack of health care services	<ul style="list-style-type: none"> ❖ Goats are generally less vulnerable to diseases. Lack of access to vaccination services results in high incidence of diseases, particularly during the rainy season. ❖ Less browsable biomass, commons and fallow lands, and acute scarcity in summer season causes productivity losses.
Lower biomass availability and no feed supplementation	<ul style="list-style-type: none"> ❖ Feed supplementation during critical stages, particularly to pregnant goats, to bucks during breeding season and to kids after weaning increases productivity.
Lack of dignity to the profession	<ul style="list-style-type: none"> ❖ This is an issue flagged by several rearers. Stray grazing is always a curse and generally goat rearers are seen as enemies by horticulture farmers, foresters etc., they are seen as ones destroying forests. The relation of goat rearers with farmers is often strenuous.
Predominance of share cropping	<ul style="list-style-type: none"> ❖ Share cropping reduces the goat rearers into wage labour. ❖ Due to high fecundity goat flocks develop faster, but the initial start up capital is essential. In share cropping, the rearer misses on the asset building opportunity.
No access to insurance	<ul style="list-style-type: none"> ❖ Mortality due to disease and kid mortality reduces flocks. In the event of epidemics, it is difficult for these farmers to get back their stocks. Insurance helps in quick rebuilding of the stocks in the event of mortality.
Opportunities of collective marketing	<ul style="list-style-type: none"> ❖ Age and weight of animal at the time of sale is critical. Sale of young animals means a lost opportunity as their rate of weight gain during initial 10 months is much faster. Collective marketing helps in sale of animals at right weight and in better price realization.

Setting Objectives for the Production Systems Improvement

Situation analysis provides a basis for discussion with multiple stakeholder groups at the MMS level. The local veterinarian, MMS members, goat rearers (both men and women) and few farmers and the local forester must ideally be present in setting the objectives of the initiative based on the situation analysis.

In the AP DAI program the following strategic areas of intervention have emerged from the initial situation analysis.

1. Organizing goat rearers into Common Interest Groups – 'Mekala sanghalu' and evolving their network at Mandal level.

2. Developing tree based fodder and fodder production in private and common lands, and in grazing tracts.
3. Institutionalizing services (health care, management and knowledge transfer) for goat rearers within the CIG and its network
4. Establishing a system of funding for purchase of goats in accordance with the available biomass to increase the stock rates
5. Enabling community based insurance product for goats.
6. Promoting collective marketing.



The following sections explain the detailed process steps in the initiatives taken up under APDAI.

1. Organizing Goat Rearers

After the initial meetings, 10 villages were identified by the MMS for taking up the initiative in Mahabubnagar district. MMS also identified nine Community Resource Persons (CRPs) from among women leaders in the experienced SHGs/ MMS. These women have good experience in group building. The community resource persons, many of them women, were oriented on the issues of goat rearers and the strategic approach. The tasks (with specified resource fee) were:

- o Identifying the goat rearers in the assigned village in consultation with the local SHGs and Village Organisation
- o Organizing an initial orientation meeting with them
- o Organizing the identified rearers into a group where each member contributes Rs.150 towards membership fee. Attend and facilitate at least three meetings of the groups
- o Organizing at least two network meetings with the leaders of each group. This will lay a foundation for the Mandal level network of goat rearers' groups.

With the above process, in Mahabubnagar district 13 common interest groups (CIGs) were formed in 13 AP DAI villages covering about 129 households and having 1843 goats.



In Anantapur, rearers from 18 villages were organized into 20 groups in 7 clusters covering total of 155 households and 5900 goats and sheep². This work took about one month. Mandal level networks of these groups were also formed.

Initially the groups started operating only on the basis of an annual fee. Over time it was felt that thrift and credit activity is necessary to have regular meetings of the groups. The Community Resource Persons trained them on book keeping and in the conduct of meetings. If the CRPs are from outside the village it would be difficult for them to attend the night meetings. Organizing the meetings early in the morning is useful as the health worker can also visit the flocks.

As the groups got stabilized, an animal health worker was identified to visit the groups during the scheduled meeting and to provide any services related to health care aspects. In Anantapur district the local Veterinary Assistant Surgeon of the Animal Husbandry department attends the network meetings and reviews the health related issues.

A major impact of organizing the goat rearers into groups is on giving them a collective voice and 'prestige'. The groups also gave them an identity. With these networks the rearers are able to get vaccines and medicines from veterinary dispensary.

Each group has identified a local 'book keeper', person having experience in keeping SHG books. A three-day training was organized for these book writers by the MMS and a set of accounts books were given to the groups. APDAI contributed Rs.30 per meeting to each group towards the cost of book keeping for the initial six months. Now the groups are paying the service charges from out of their own funds.

² In Anantapur district both sheep and goat rearers are organized into same group as traditional sheep rearing with large flocks is not predominant.

2. Fodder initiatives

If biomass is increased, the stocking rates will increase or the existing goats will have better and faster body weight gains. Enhancing biomass (particularly shrub, trees and twines) is therefore, an important aspect of improving goat production systems. In this regard, following processes emerged from the experiences of AP DAI.

a. Planting Fodder Trees:

A participatory exercise was taken up to identify the grazing tracts, commons and other grazing areas. Ideally such details need to be put on a topo-sheet. Based on this map, areas should be identified where biomass can be intensified by seed dibbling of fodder tree species. Clear norms should be evolved for seed collection (based on the seasonality), storage and plantation.

Box 4:

In 2008 Rabi, members in seven groups planted a total of 13697 plants in their fields. Project supported them with Rs.1 per plant as an incentive. The sub committee observed 70% survival after three months; and it was 42% in March (i.e. after 6 months). As these plants are in isolated lands and with no provision of watering and protection the survival rates were low. These deficiencies were corrected later on.

b. Fodder production in owned and leased-in lands

If the rainfall is low or erratic initially, a good extent of land in a village would be left fallow. Also, the 'current fallow' lands are to be identified. Growing a mix of short duration fodder crops (which may also give some grain) such as cowpea, horsegram generates substantial fodder for the lean season as a supplement. Such fodder crops can be supported both in leased-in lands and in owned lands of the goat rearers.

Box 5: In Mukthipahad, a group of 7 households cultivated horse gram in 3 ac of leased land.

S.NO	Component	Amount (Rs.)
1.	Lease amount – Rs. 300/ ac	900
2.	Ploughing –Rs.400/ ac	1200
3.	Broadcasting seed	150
4.	Fertilizer	225
5.	Total support from Project	2500
6.	Protection, harvesting & threshing	On their own
7.	Seed returned to VO	27 kg
8.	Grain harvest -200 kg; Rs.1250/Q	2165
9.	Husk- 3 Tractor loads; Rs. 1500/ load	4500
10.	Gross profit	6662
11.	Net profit	4497

Each household got half a tractor load of husk and 24 kg grain – the total value of the benefit of about Rs.642 per household. This is used for feed supplementation in the lean season.

An indent for seed should be generated from members of the group willing to take up fodder crops and aggregated across the groups. Such seed should be supplied on a subsidy basis from the program.

In AP DAI eight Village Organizations (VO) and the eight goat rearers' groups negotiated with farmers having current fallows of 34.5 acres. VO paid the land lease amount as support from the program and entered into an agreement with the goat rearers' group for share cropping.



It supported the cost of ploughing, sowing and fertilisers. The Seed Bank (on behalf of the VO) provided seed with an agreement that one and half times of the seed taken will be returned by the rearers' group.

The goat rearers' group members did all the labor work in raising the fodder crop voluntarily including protection, weeding, harvesting and threshing. Grain was returned to the Seed Bank as per the agreement, to be made available for the next season; rest of the grain, husk and dried fodder (by-products) were taken by the goat rearers' group. These by-products of horsegram were consumed by goats. Grain is supplemented for the marketable age group kids and pregnant goats.

c. Regenerating the Common Lands

Goat and sheep rearers in Oruvai village in Nallacheruvu Mandal of Anantapur district showed the model of small ruminant rearers leading common lands regeneration. The rearers in the nearby habitations were organized into groups. The group representatives met once in every month as a network in Oruvai village. The local veterinary doctor also participates in such meetings. Over time, spanning several discussions, the rearer groups' network along with other livestock owners, Village Organisation and the Gram Panchayat identified a block of 150 acres out of the 360 acres of the total hillock (common lands) for protection and intensifying biomass



for small ruminants. A Governance Committee was formed with representation from all the stakeholders. The governance committee laid down norms of protection and punishment for violation of norms. Fire lines were prepared to prevent the hillocks from catching fire. Extensive seed dibbling of fodder and grass species was taken up. The natural springs (Chelama) were renovated to provide drinking water for livestock in the grazing areas.

Inspired by the field day organized at Oruvai, rearer groups in another 7 clusters in Nallacheruvu and Gandlapenta mandals initiated similar activities. The initiative finally covered 16 villages and brought about 2000 acres under protection led by the small ruminant rearers. Protection from grazing to enable natural regeneration and extensive seed dibbling are the strategic initiatives to regenerate biomass useful for small ruminants.

3. Primary Health Care Services

The disease patterns and mortality rates were analysed during the situation analysis. Based on this understanding, primary health care services were institutionalized in the goat rearers' groups.

A refresher course was organized for the animal health workers who were trained earlier under other programs. A set of training material was also prepared for the purpose. The health workers were hired to conduct animal health awareness training to the groups by visiting them at least two times in a month. Necessary resource fee was also paid. The training exercises within the group helped in raising the awareness of the goat rearers on primary health care and on the need for vaccination.

Regular and scheduled vaccination

As part of the overall program on Community Managed Preventive Health Care Services taken up under AP DAI in the program Mandals, indents for vaccination were sought from the rearers groups. These indents were pooled and request was made to the Animal Husbandry department for the supply of vaccines. The pool of animal health workers trained at the Mandal level provided the vaccination services on payment of resource fee of Rs 1 per animal. The vaccination services are institutionalized into these groups as per the yearly calendar. The groups were also linked to the local Veterinary Assistant Surgeon for referral services and to source vaccines. Through these interactions, awareness on disease management among the rearers was substantially enhanced.

Services of Animal Health Worker

A trained Animal health worker was attached to the group to visit once in a fortnight. The worker was paid by the program initially on the basis of field visit reports. However, the goat rearers' group was expected to pay the service charges in due course. The health worker would inspect the goats in the group and attend to any primary health service needs.

Ethno-veterinary practices

Indigenous knowledge (IK) in primary health care is important to reduce investments on medicines and also to avoid unnecessary anti-biotic load. Training programs were organized both for the animal health workers and the rearers on ethno-veterinary practices. Further efforts are needed to promote these practices.

Medicine kits with the Groups

Accessing medicines is a major constraint for even those groups nearer to veterinary hospitals; the nearest veterinary medicine shop is about 25 km. To ease the constraint, medicine kits with medicines required for common health disorders are placed with the Groups.

The first aid kit consists of ...

Hicks thermometer, plastic syringes, cotton wool, bandage cloth, turpentine oil, potassium permanganate, Boric powder, Neoxy powder, Tr Iodine, Scissors, and some essential medicines.

Initially the kit was given to one member acceptable to all rearers along with a chart detailing the name of medicine, purchase price and sale price. Medicines were sold on price basis on the advice of a trained animal health worker. As the margins are low and due to lack of interest of the member, timely replenishment of the medical kit became a problem. The kit is later placed with the Animal Health Worker servicing the groups who collects the costs and replenishes it regularly.

A combination of member awareness through several training programs on goats management, making available services of animal health worker, regular scheduled vaccination services, availability of a medicine kit have substantially increased the knowledge and awareness of the goat rearers on health management.



4. Management of Goat Kids

Kids grown to a marketable age with high slaughter weights is the 'crop' for goat rearers. Their financial returns mostly depend on this crop. Higher kid mortality depresses rearers' income and also results into wastage, it is like losing the crop at the time of harvest! Good body weight for kids is important as it has a life long impact on the health of goats.

Usually the flock is let out for grazing in the morning and returns in the evening. During the day, the rearers keep their kids of below 2 months under bamboo-baskets 'pedda jallalu'. About 9-13 goat kids are kept under one basket with limited Neem leaves hung from the top. The place of the basket is changed daily. Kids suckle milk from does twice a day in the morning and in the evening.

After 2 months, kids have to traverse longer distances along with the flock. The energy the kids acquired by browsing will be exhausted in walking long distances. It is observed that rearers usually sell the kids at the stage of weaning at low prices. The reasons being:

- ⇒ Lean kids with low body weights
- ⇒ Risk of mortality
- ⇒ Keeping the kids increases the flock size making it unmanageable
- ⇒ If there is twinning (giving birth to two kids), mothers' milk would be insufficient to tend both the kids.
- ⇒ No elder women/ men at their homes to look after the kids

AP DAI took up two strategic initiatives to address these issues: a) Day-Care Centers for goat kids b) promoting kid-rearing units.



The kid-rearing units are intended to circulate the kids internally so that only bucks with appropriate slaughter weights will be sold in the market from the given area.

Day-Care Center for Goat Kids

This experiment provided in mixed results. The program supported one shed and wages of an elderly woman to take care of the goat-kids during day time. Land was provided by the group and they have also contributed labour and part of the material for the shed. A nominal amount of Rs.5 per kid was charged monthly. This was meant to be a subsidized service that can eventually be integrated into Employment Guarantee Scheme.

The rearers leave their goat kids in the age group of 20 days to 3 months at the Day-Care Center while taking the flock for grazing in the morning and collect them back while returning. The center was maintained under hygienic conditions. Mineral blocks, tender leaves, supplementary feed and quality drinking water were provided in the Center. The cost of maintaining such center amounts to about Rs.115 per month/ kid. However it can be reduced substantially in the following ways:

- ❖ Increasing the number of Kids joining the center
- ❖ Purchasing feed ingredients purchased in season in bulk
- ❖ Provision of drinking water tap at the shed reduces labor charges
- ❖ Integrating the monthly salary of the old women/ care taker into NREGS.
- ❖ Extending the service even to lambs.
- ❖ Proper collection and sale of the dung/ integrating a compost unit with the shed.

The Day-Care center worked for three cycles. The group reported higher body weights and realized better price. The center discontinued as the rearers sold off all their animals in the subsequent year.

It was realized that higher scale of operation is necessary for such center to succeed. Such scale can be achieved when the center is maintained at a village level (with several groups) having higher concentration of small ruminants and it must be open for both goat kids and lambs with separators in the shed.

Promoting Kid-Rearing

The objective of this initiative was to ensure the goats attain proper body weights at the time of sales. Some of the flock owners sell the kids at an early age. The program promoted purchase of such kids by women and members of groups and rearing them to proper slaughter weights/ age. Kids were purchased from June to August (rainy season) when the distress sales are high and were reared up to March/ April i.e. for 7 to 8 months. This becomes a distinct enterprise in itself. Community Managed Insurance was also made available to such enterprises. In Kosgi mandal, five groups purchased 50 kids in December and insured 39 kids. No mortality was recorded.

Community Managed Insurance for Goats

To overcome difficulties in the present insurance schemes, WASSAN together with the United India Insurance Ltd company evolved a framework for community based insurance product for sheep and goats. The product issued by the UIIL is managed by the MMS. The requirements of certification by the veterinary doctor have been waived by the insurance company. The claims are assessed by a trained sub-committee of the MMS and the pay-outs are also settled on the basis of the claim assessment by the MMS. The MMS uses the pay-outs to replace

the dead animal so that there is no asset loss³. This product is now open for the goat-kid rearers. After sufficient experience it will be opened for all goats.

Increasing Stocks – Establishing a system of funding goats:

In a given geographical area the capacity to stock goats is limited. Goat farmers engaged in share-cropping arrangements for lack of capital, only realize their wages. It is important that these poor farmers realize the full value for their work. Goats with high fecundity can build capital assets for the poor very fast - if the asset is their own. Giving subsidized loans for purchase of goats has become a notorious activity in the development sector. At times it has left the families indebted as the transaction costs and mortality rates are high.

The exercise of increasing goat population by introducing new ones must start with a subjective assessment of stocking capacity of the area. A strategic initiative of increasing the goat population without cash loans emerged in the AP DAI program. In Lodhipur village of Kosgi Mandal the rearers assessed that the resources in the grazing areas can sustain about 100 goats.

At that time there were 70 goats and many of them were under share cropping. If fodder resource base of the area is further enhanced it may support more goats. A system of funding evolved during the interactions with the Village Organisation and goat rearers.



As per the system the Village Organisation 'provided pregnant' goats to the identified families. **The steps are:**

- ❖ VO purchases pregnant does from the project funds sufficient and loans them to the goat rearers groups on the following terms:
 - The mothers shall be given back to the VO after two kiddings; by that time the first batch of kids will grow up
 - Of the total kids born in every kidding, the group returns two female kids to the VO after rearing them for one year. This is to ensure that the mother stock is replaced, filling in any mortality.
 - The mothers are then distributed to other members or to the second group.
 - The goats cannot be sold by the group.
 - The mothers are then distributed to other members or to the second group.
 - The goats cannot be sold by the group.
- ❖ VO will take the responsibility in case of mortality due to diseases. However, if the goat dies as result of carelessness of the rearer, s/he shall replace it at their cost.
- ❖ Vaccination and other health care services are provided by the VO.
- ❖ The goats' performance data is recorded on monthly basis; this also serves as a monitoring system.

The individual households will have basic stock to start off their own flock. The above arrangement is simple and mother goats rotate among the groups. (see box 6) It avoids any cash transactions and interest payments. Selling of the goats is controlled as the asset does not belong to the individual.

Debt burden is avoided as the VO absorbs any risk and that the goats are insured. Over time this method may be strategically used in replacing all share-cropping arrangements.

Box 6:

The 10 pregnant goats given to Lodhipur village in December 2006 covered four villages by October 2008. After the first kidding in Lodhipur, there was some resistance from the large farmers of the neighboring village. Thus the goats were transferred to a rearers group in Gundlapally through the Village Organisation in June 2007. After one kidding the does were shifted to Mukhipahad village organization in October, 2008. After two kiddings in that village the does were transferred to Bhakthimalla in November 2009. The following table illustrates the rotations:

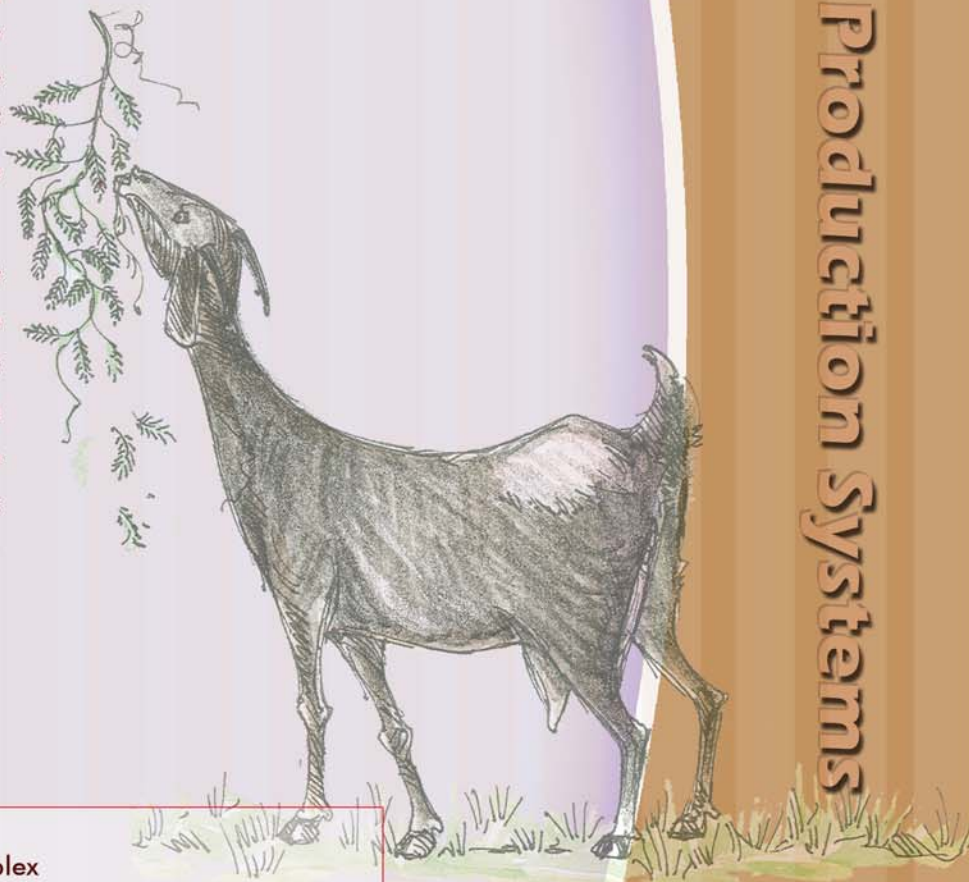
Village/Year	Returned after	No. of HHs	No. of mother goats	No. of kids (progeny)	Mortality	Survived	Returned back to VO	Remarks
Lodhipur Dec 2006	One Kidding	6	10	18	3	15	2	
Gundlapally June 2007	One kidding	6	10	17	4	13	2	2 does from the original mother stock died
Mukthipahad Oct 2008	Two kidding	2	8	26	3	23	3	1 is due
Bhakthimalla, Nov 2009								
		14	8	61	10	51	7	

The original mother stock of 10 pregnant does generated flocks in 14 households. It generated 61 progeny (in 3 years) of which 51 survived. The Village Organisation gained 7 goats additionally, while two of the original does died i.e. the stock of mother goats for rotation increased from 10 to 15.

The seven out of the 10 goats given to Lodhipur were purchased at Rs.1757 each and the remaining three were purchased at Rs.1600 each. Rs.7580 were spent on fodder and other miscellaneous expenses – resulting in a total cost of Rs.24,679. In three years this gave rise to 51 goats, and at an average price of Rs.1500 each the total value of the progeny is Rs.76,500. Eight out of the 10 original mother goats are still in circulation.

Organizing goat rearers into common interest groups with thrift and credit is the pivotal point for improving the production system. Training, vaccination and health care services, insurance, credit and support systems like kids' day-care centers can be built upon the foundation of the rearers' groups. It also provides them a collective voice and dignity which further enhances when they take up intensive biomass regeneration programs. The rotational asset building systems help the share croppers or new entrants in building own flocks without any loan burden. Dovetailing services of animal health worker streamlines the health care services.

It is important for the development programs to realize that there is more to 'goats' than giving loans. There is specific need for making public investments on goat production systems to support one of the most promising and low risk production system accessible to the poor.



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