

# Livestock for the poor: under what conditions?

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## Abstract

This study evaluates an intervention in the dairy subsector by an Indian livelihood promotion institution and conducts a detailed analysis of the main cost and benefit factors of the activity. Two rounds of data are available which allows for the comparison of impacts and costs and benefits under different circumstances - a relatively good year as well as one officially declared as a drought period. Results suggest that the programme is beneficial but impacts cannot be sustained under the macro shock. Looking at the main cost factors reveals that fodder availability was a major problem. The results help to suggest an improved programme design.

## 1 Introduction

Over the last few decades, microfinance was at the forefront in the discourse of international organizations and by politicians and actors in the field. It was seen as *the* tool to eradicate poverty and developed into the donors' favorite means of doing so. Nevertheless, it soon became apparent that it is typically the very poor who are being left out of microfinance (Coleman 1999; 2000). Such observations lead practitioners and academics alike to the realization that not only microcredit but also microfinance alone is not enough; that microfinance is not a replacement for jobs that are not there, education and skills that do not exist, or markets that are inaccessible. Two types of responses emerged to address this problem.

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One response was a new approach to microfinance. It carries names such as ‘holistic’, ‘integrated’ or ‘credit plus’. Typically, microfinance is combined with complementary services with the aim of having an impact on the lives and livelihoods of poor men, women and their families. Such holistic approaches are complex but more and more examples can be named. Common to all approaches is that complimentary services, such as informal training and business and financial management, evolve around the client and aim to develop practical and relevant skills and knowledge.

The second, and more recent response is a view that the poor need all this support without the burden of a loan. Probably *the* flagship programme under this line of thought is the “Challenging the Frontiers of Poverty Reduction-Targeting the Ultra Poor” (CFPR-TUP) programme pioneered by BRAC, a Bangladeshi development organization. The programme targets the most disadvantaged households in a certain area, provides them with direct asset transfers, livelihood training and ultimately “graduates” them into regular microfinance programs. This program has been the subject of a number of non-experimental studies (Das and Misha, 2010; Ahmed et al 2009; Rabanni et al, 2006). Using non-experimental evaluation techniques, these studies generally find very positive programme impacts on household’s asset base and consumption.

Based on this apparent success, international donors have taken interest in the programme and the Ford Foundation for example sponsored the implementation and evaluation of nine similar programmes in seven countries around the world<sup>1</sup>.

This study analyses a programme that falls within the first of these two responses, but of which the lessons learned are crucial for both responses in order to reach their aim of helping the poor in a sustainable manner. The holistic microfinance intervention analyzed here has at its heart a loan used for the purpose of buying a cow or a buffalo, with the main aim of producing milk for own consumption and/or income generating activities. Livestock, and especially cows or buffaloes, are at the same time also the most prominent asset transferred to the poor under the second response.

They are not always transferred in a thought through and sensible manner though. India specifically has a number of examples where cows or buffaloes were ‘dumped’ on ‘lucky’ beneficiaries with devastating consequences - for the poor households but also for entire regions. One example are relief packages provided by the Indian Prime

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<sup>1</sup>Ethiopia, Haiti, Honduras, Pakistan, Peru, Yemen and three locations in India.

Minister during the crisis of farmer suicides. A report by the Comptroller and Auditor General (CAG) about the provision of hybrid cows and buffaloes showed that nearly 30 per cent of all distributed animals during the package period of 2006-07 to 2009-10 were not with the stated owner anymore, either having been sold or died. The corresponding section in the report was thoughtfully titled “Unfruitful subsidy under Prime minister’s Package”. Further research by the prominent journalist P.Sainath revealed that the beneficiaries had neither fodder nor water, nor was their any training provided. One beneficiary is reported saying that “While the cows lasted, we spent far more on them than we could afford”, another that “We sold when the damn things drove us bankrupt” (P. Sainath, 2011).

This study combines a longer-term evaluation and a cost-benefit analysis of an intervention with livestock provision at its heart. Due to a change in macro economic conditions over the evaluation period, we are able to point to a number of areas that should be of major concern when designing such an intervention, in order for beneficiaries to be able to benefit from the intervention in a sustainable manner.

More specifically, we find that even if the intervention is found to have positive impacts (in this case on consumption patterns, as also found in the evaluation of the famous intervention by BRAC), these are not necessarily sustained when a greater shock hits. Implementers and funders alike, need to be aware of all major cost elements of the intervention to the households in order to not only prepare them (through training) but also insure them accordingly.

In the next section (section 2) we describe the intervention analyzed in this study and thereafter report on the impact estimates over two survey rounds (section 3). The main body of the study (section 4) conducts then an analysis of the costs and benefits to the programme participants. The final section concludes with policy recommendations

## 2 The intervention<sup>2</sup>

The intervention under consideration in this study is delivered by a livelihood promotion institution (LPI), which combines microfinance with complementary services with the aim of having an impact on the lives and livelihoods of poor men, women

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<sup>2</sup>This section follows closely the description in Augsburg (2009b).

and their families. When looking into a new intervention, they typically conduct studies on sub-sectors with the goal of identifying constraints on low income actors within the sector. An intervention is then designed that creates opportunities for these poor through credit, technical assistance and, if necessary, the establishment of market linkages.

The programme analysed in this study is one of these interventions, which looked at the dairy sub-sector.

The backdrop of this intervention was extensive country-wise investment in basic infrastructure such as chilling centers, cattle-feed plants and veterinary medicine and vaccine plants by the National Dairy Development Board in the late 1960s, most of which had closed down by the 90s due to low procurement. The LPI under consideration decided to step in and to offer loans for cattle investment to the economically poor, and to establish linkages between these new milk producers and the previously shut-down milk chilling plants. In view of the complex livelihood promotion mission, the organization offers services alongside the loan, namely financial services (life, health and livestock insurance) as well as non-financial services, such as regular visits by a veterinarian, health camps for the animals, milk fat testing, etc.. In brief, these additional services address issues related to knowledge dissemination, risk mitigation, and productivity enhancement.

A summary of the services that comprise the intervention are:

- |                        |  |
|------------------------|--|
| Financial services     | <ul style="list-style-type: none"><li>- the provision of credit for the purchase of (female) cattle;</li><li>- the provision of life insurance for animals, collaborating with insurance companies;</li><li>- the combination of loans with life insurance for the customer;</li></ul>   |
| Non-financial services | <ul style="list-style-type: none"><li>- training and awareness camps;</li><li>- monthly medical check-ups, vaccination, etc. for the animal;</li><li>- the identification of areas where collection efficiency can be improved;</li><li>- the purchase of electronic milk testing kits for quick fat testing;</li><li>- assisting milk chilling plants in the automation of accounting and payments.</li></ul> |

The average loan size of loans were provided under this intervention was about 11,500 Rupees (USD 290) at the time of the first survey round (in 2009), an amount that would cover the cost of a cow or a buffalo, depending on the age and 'quality' of the animal. On average, the loan is repaid over 16 monthly installments, at an

interest rate of 24 per cent per annum. An additional security deposit of 10 per cent of the loan is retained by the organization. Besides this deposit, no collateral is required but the loan is joint-liability and it comes with a mandatory life and health insurance for the client as well as the spouse. In addition, the customer has the option to buy insurance for the animal and of paying for additional non-financial services, which were offered at a rate of Rs. 300. For this payment, they can expect monthly advisory services on prevention and actual measures to reduce and deal with the risks involved in engaging in dairy at his/her doorstep.

### **3 The intervention's impact**

#### **3.1 The evaluation design (and its caveats)**

A number of challenges had to be dealt with in this evaluation.

For one, the implementing institution desired to evaluate this intervention, one of its flagship programmes in terms of encompassing a full livelihood approach, where it was already well-established and well-functioning. It was felt that this would allow the programme, and hence the effect on its participants to be close to the steady state, instead of being for example downward biased due to initial start-up problems. Such start-up problems were not negligible given the context in which the institution is operating this programme: the chosen district Anantapur in the south of the state of Andhra Pradesh is one of the most backward districts of the state (Seeramulu, 2006), which to a great extent results from it being the second most drought-affected district of India. Depending on agricultural activities as the major source of earnings, the population faces extreme volatility and uncertainty in their income streams. This makes living conditions very hard; people are extremely vulnerable and poverty is highly prevalent. Aspects such as these make holistic microfinance interventions even more important but at the same time also much harder to implement.

This aim of evaluating an intervention that has been operating for a number of years would make it in itself very difficult to implement the currently considered gold-standard of evaluation, namely a randomized approach. It was additionally rendered impossible given one of the founding father's strong conviction that denying services to eligible populations is ethically not justifiable.

The second impeding challenge is related to the first one in that the organization did not collect any information on households in their intervention areas before they started the operations (partly many years ago), especially not on non-clients.

This non-availability of baseline data excludes the possibility of accounting for initial differences, especially in the outcome variables of interest.

The challenge was hence to construct a control group from non-intervention households.

The approach taken is described in more detail in Augsburg (2009a and 2009b) and basically relies on finding households living in villages where the LPI was not offering its services at the time of the first survey round (possibly due to capacity or time constraints), but where it saw potential to offer the dairy intervention in the future. These villages with 'dairy potential' were chosen by staff of the institution. Households within these villages were drawn from a census collected as part of the Rural Poverty Reduction Program (funded by the World Bank and implemented by the Government of Andhra Pradesh), which classified each household in one of four categories (poorest of the poor, poor, not so poor, and non-poor) using the 'participatory identification of the poor'-approach. Discussions of the implementing institution revealed that their target group falls in the middle two of these categories, and so households from this category were sampled and interviewed in both implementation as well as control villages.

In the impact analysis to follow, propensity score matching was applied. The participation equation includes predetermined variables (such as education, caste and some further household characteristics), furthermore variables related to the LPIs appraisal policy and placement decision are accounted for (the institution for example prefers to give loans to households that are less likely to move, such as for example married women or those households that have lived in a village already all their life). Furthermore, the institution works in poorer districts but where certain factor conditions are met (see Datta et al. (2005) for a more detailed discussion). To the extent possible, such variables were accounted for by including mandal-level<sup>3</sup> characteristics, such as for example the percentage of villages on a main road. The matching estimator applied using this participation equation is kernel matching. Standard errors are bootstrapped and clustered at the village level. More details are provided in Augsburg (2009b).

While attention was paid to remove selection bias to the greatest extent possible, this approach (possibly due to lack of some additional data) is unlikely to remove bias completely from the estimates, which is acknowledged in the previous work and possible directions of the bias are discussed. In what follows we improve slightly

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<sup>3</sup>Mandals are the third sub-national administrative units below states and districts in India.

on those results by refining the evaluation methodology, but still cannot claim to remove possible selection bias fully. Nevertheless, we are confident that results are robust enough to provide motivation for the main analysis of this paper, namely to understand the reasons for the evaluation finding, i.e. that positive impacts reported in the first impact analysis disappear a year later. Section 4 of this paper sheds light on the black box of these results.

### 3.2 Impact estimates

Estimated effects of the first survey round (reported in Augsburg, 2009b) on clients of the LPI are encouraging: The results indicate a positive programme effect on the conventional five per cent significance level on total household income, asset wealth, and consumption of participants. The effect on food and other non-durable consumption is found to be consistent across different types of clients, i.e. whether they take a loan only or in combination with non-financial services. The study concluded that these findings confirmed “that the primary goal of the integrated microfinance services is reached, namely reducing risk and uncertainty and by doing so helping to smooth the participants’ consumption and in increasing the ability to cope with shocks”.

In what follows, we repeat the analysis with data collected on the same sample approximately one year h jafter the first survey round. One of the main purposes of this survey was to measure the longer-term impacts of such an intervention.

One caveat with the impact estimates just reported is that they are upper bounds. In the analysis, client were compared to a control group that was selected carefully so as to be comparable to the clients. Nevertheless, we cannot be certain that the households in the control group would have actually decided to engage in dairy, and to take a loan from the LPI to do so. In other words - and as discussed in the previous section - it is possible that some selection bias remains.

One way of improving upon the previous approach is to conduct an Intention-to-Treat (ITT) analysis, where clients of the dairy intervention as well as non-clients residing in the same intervention villages are compared to the control group. By doing so, we not only address the issue of selection bias further, but an additional advantage is that we can interpret the intervention as a policy and learn about the overall effect on those people that the LPI targeted rather than only those that they actually reached.

Column (1) of Table 1 displays the impact estimates on a number of outcome indicators, using the first round of data and applying the ITT approach. We find



no significant effect on total household income or assets anymore but we still find a significant impact on normal income (a self-reported measure of permanent income) and also the difference in consumption expenditures is still significant. The conclusion that the dairy intervention has a positive impact on its clients' consumption levels hence remains and can be extended to saying that the intervention has a positive impact on its target population's consumption levels.

Table 1: Impact Estimates Round 1 and 2 - General

Outcome	ITT Estimates - General		
	(1)	(2)	
	Round 1 (2008)	Round 2 (2009)	
Household income	- total	8,583 (9,575)	-1,770 (8,794)
	- total, incl. home consumed milk	8,935 (10,005)	-975 (8,670)
	- normal	13,827* (5,941)	-3,050 (8,442)
	Savings	-326 (1,386)	-1,167 (3,250)
Assets	56,093 (52,531)	90,943 (68,936)	
Consumption	- total	17,968* (4,293)	-5,358 (16,339)
	- food	7,684* (2,331)	3,329 (3,083)
	- other non-durable	4,776* (1,377)	-9,570 (14,148)
	- durable	4,227* (929)	-184 (273)

We then turn to the second round of the panel data to repeat the analysis. We use the same evaluation approach as before, the main difference being that the outcome indicators are now reported in 2009 by the respondents and not in 2008. We additionally had to reduce the control group sample as the LPI had started to operate the dairy intervention in some of the control group villages inbetween the two survey rounds. While the reduction in sample from 30 to 18 control villages is undesired and calls for more caution in interpreting the results, it at the same time puts confidence into the selection of control groups in general, i.e. them having been chosen on the basis of having 'dairy potential'. The fact that the LPI started to offer the services in these villages is clear evidence that the right criteria were applied in the selection process.

If we look at the impact estimates obtained from the second survey round, con-

ducted in 2009, presented in column (2) of Table 1, we can see that none of the effects are sustained a year later. We find no significant impact between the two groups anymore, also not on consumption expenditures, which was the most pronounced impact found previously. We can see that the measures become more noisy, most likely due to the reduced sample size. Nevertheless, we do not only find estimates to become insignificant, but many drop considerable and even change signs - especially those that were significant in the first survey round. An interesting observation is that we only find an increase in the value of assets, which could be a result of the significantly higher durable consumption in the previous year. In addition, we find that while both groups suffer from a reduction in livestock during the two survey rounds, the target group of the intervention does so to a lesser extent, which might be due to the preventive measures (such as vaccinations) offered by the institution. This hypothesis would be supported by the impact estimates on health costs for the animals, which is estimated to be lower in the second survey round than in the first, and in both rounds lower than the control group - none of the results being significant though. They are presented in Table 2, along with other investment returns - none of which are significant in either of the two survey rounds.

Table 2: Impact Estimates Round 1 and 2 - Investment returns

Outcome	ITT Estimates - investment returns	
	Round 1 (2008)	Round 2 (2009)
Dairy Income (monthly)	-636 (191)	361 (365)
- incl home cons.	-640 (205)	-62 (370)
Health costs (monthly)	-9 (47)	-58 (84)

### 3.3 No long-run effects for dairy clients?

The most obvious interpretation of these impact findings is that the the target group of the LPI experience an initial benefit from participating in the intervention, but that this effect is not sustained in the long-run. To date, the literature on the long-run effects of microfinance interventions is sparse, which makes it difficult to put the findings into context. Looking at the literature on microfinance it becomes clear that the debate whether and how much it helps the poor is far from being solved. Despite high hopes for microcredit's potential to transform the lives of the poor, there is a

lack of concrete evidence demonstrating its impact. This holds true for short-term impacts (most studies conduct their follow-up survey 12-18 months after credit is provided) and even more so for long(er)-term impacts. To the best of our knowledge, no robust evaluation study has yet published findings that would inform on farther reaching impacts than just the immediate ones.

What is generally accepted though is that the dairy sector itself is a viable activity to undertake in India as well as elsewhere. As reported in Rukmani & Manjula (2009), the sector “has an estimated value of INR 1.5 billion (US\$ 33.6 million) in 2002-2003 (CSO, 2003) and provides employment to almost 18 million people, with women constituting about 70 percent of labour force. It currently contributes 6 percent to India’s GDP and 25 percent to the agriculture GDP and in the last decade it has grown at an annual rate of 5.6 percent, which is higher than 3.3 percent growth in agriculture (Ali 2007a). In addition, livestock are critical to the livelihoods of nearly 75 percent of Indian rural households, of which the majority are small and marginal farmers and landless (Brithal et al, 2006).”

If we accept that dairy is worth pursuing as an income-generating activity, the question arises why we see this diminishing programme effects. We will see in the next section that the answer is relatively straightforward once one takes the broader context in which this programme is implemented into account and digs deeper into the data. While findings show that it is not the programme design which cause these drops, they do point to ways of improving the delivery of this holistic intervention.

## **4 The broader context and its reflection in the data**

In September 2009, Andhra Pradesh, the Indian state in which this study takes place, was officially declared drought-hit. The acting Chief Minister at the time, K. Rosaiah, made the announcement after the the rainfall deficit had peaked at 57 percent. This drought not only affected millions of farmers and agricultural labourers, but also dairy producers were badly hit. According to *The Hindu*, a leading Indian newspaper, the “drought conditions in the State have made their impact on milk production going by the decline in procurement by the dairies.” (*The Hindu*, August 10, 2009).

As will be seen in the next section, this macro shock is well reflected in the collected data. We are conducting a cost-benefit analysis of engaging in dairy in our survey areas. More specifically, we will look at the returns households report from engaging in this activity as well as two major sources of expenditures: health

expenditures on the animal as well as for fodder.

#### 4.1 Income from Dairy

We collected different types of information on returns from the dairy activity. Among them was information on the 'normal' income from the activity. This was elicited by asking about the income they received in the previous year and thereafter whether this income is a 'typical' income for the household and if not, what a typical income would be. We can see from Table 3 that this normal income was reported at Rs. 11,823 (USD 272,50) per animal in 2008 and Rs. 11,822 (USD 244,39) in 2009. To put this in context - the normal income from dairy for one animal responds in both years to approximately 17% of normal total household income.

We also collected information on a number of income related information which allows us to approximate the just described reported normal income. Households were asked how many litres of milk their animals (separated by type of animal, i.e. local buffalo, graded buffalo, local cow and graded cow) typically produced in the lean season (typically the dry summer months) as well as in the full season. They were asked how many months the animals are productive per year. And, information was collected on what percentage of the produced milk is consumed by the household. This information was combined with the reported price paid per litre sold. Summary statistics for these variables are reported in Table 3, as well as the constructed variable on typical income. We can see that the approximation is very close to the reported normal income with Rs 11,726 on average in 2008 and Rs. 11,865 in 2009. These variables are not significantly different from each other.

The third variable reported in Table 3 is actual income earned from dairy in the years previous to the survey rounds - and hence the one of greatest interest for the comparison of returns and costs of the activity. This variable is not constructed but shown as reported by the households. Prior to the survey round in 2008, households seemed to have a very good year, earning on average Rs 15,000 per animal, hence about Rs. 2,300 (21%) more than they normally do. As will also be discussed in more detail later, this is most likely due to that year having been a very good year in terms of rain and agricultural activities. In 2009 on the other hand, households experienced a dramatic drop in the income from dairy - a drop of more than 50%, earning just more than Rs 7,133 per animal.

As we will see in our next discussion on the market value of milk consumed at home, the number of litres per animal does drop, but not by too much. This in combination with an increase in prices, implies that household must have experiences a substantive drop in the productivity of their animals.

The market value of milk produced and consumed at home is displayed in the second panel of Table 3. As mentioned, this variable is calculated on the basis of the number of litres of home produced milk reported to be consumed by the household as well as the price the household gets paid for the milk they sell (if households do not sell any of their milk, the sample average was used to impute the price they would receive). We can see that the value of home consumed milk increases slightly from 2008 to 2009 - raising from Rs. 1,956 to rs. 2,221. This increase is not due to a higher consumption level (which actually decreased from 23,94 litres to 20,15 litres (per animal)), but due to a higher market price of the milk, which stood at Rs. 10,20 in 2008 and raised to Rs. 13,86 in 2009.

A lot of the presented information hints already at a story of higher demand with simultaneously lower supply: animals produce less, households reduce their own consumption slightly but not by very much, so the supply of milk is reduced, which drives up the price for the milk.

We will get a clearer picture of the mechanisms underlying this process in the next section, where we discuss health and fodder expenditures the households incurred in the two survey years.

For now, we can see from the last row of Table 3 that earnings dropped significantly from almost Rs. 17,000 in 2008 to just over Rs. 9,000 in 2009.

## **4.2 Health and fodder expenditures**

Table 4 gives information on health and fodder expenditures experienced by the households over the two years. As in the table on returns (Table 3 ), we give sample averages for variables that were used in the construction of variables discussed.

The first type of expenditures shown are health expenditures per animal. Here, the households were asked how often their animals fell sick and what costs they incurred each time on average. They were also asked whether they experienced any other monetary loss (due to lost by-products).

These unit costs are quite similar over the two years: households reported to have

Table 3: Income from Dairy - per animal

Variable	Information used (and their sample averages)	2008	2009
(1) Normal income from dairy		11,823	11,822
	'Typical' <i>monthly</i> income:	1,465	1,789
	No of productive months:	7.952	6.50
(2) Calculated income last year		11,726	11,865
	No of litres produced:		
	lean season:	3.21	2.62
	full season:	4.74	4.34
	Price paid per litre:	10.20	13.86
(3) Last year's income		15,000	7,133
(4) Market value of milk consumed at home		1,956	2,221
	No of litres consumed (per month per hh):	23.94	20.15
(3)+(4) Total income from dairy last year		16,956	9,354

spent Rs 1,188 per animal in 2008 and Rs. 1,119 in 2009.<sup>4</sup> It seems that the number of times animals got sick actually decreased over the period but that costs for each incidence increased, which more or less results in these similar costs in 2008 and 2009. One could speculate that the decrease in incidences is a result of the additional services provided by the institution (including vaccinations) but we do not have direct evidence on this.

Looking at the second panel of Table 4, which gives information on fodder expenditures, the picture changes. Total fodder expenditures per animal increased sharply from Rs. 4,827 in 2008 to Rs. 8,509 in 2009. Not all households actually incur such expenditures: In 2008 34% of all households engaged in cow and/or buffalo raising collected all fodder for the animals from fields or other land (their own, public or from other households). In 2009, this percentage dropped to 23. For those that buy some of the fodder we know how much they spent on certain type, either green, dry or other type of fodder. We see a change in the expenditure pattern in the two years, which will most likely be partly explained by price changes, which we can unfortunately not entangle. We only know the actual amounts spent but not how much fodder they received for these amounts. We can hence not say whether a household bought lesser

<sup>4</sup>These numbers are potentially lower than people knowing the area and field would expect. This is due to an NGO (RCT) operating in some of the survey areas which offers emergency services for free, so that these costs are zero for some observations.

quantity but greater quality or the other way round.

In the same line of thought we do not know the quality of collected fodder and hence make the simplifying assumption that the price for the collected fodder is the average of purchased fodder. Based on this assumption that the value of collected fodder dropped from 3,143 to 2,669. Given that the second year was a drought year, it is likely that prices for fodder increased - a theory supported by the increase in amounts spent per animal on certain fodder types: the amounts spent on green fodder rose for example from Rs. 105 per animal in 2008 to Rs. 375 in 2009. Only the category 'other fodder' increased which seems to be due to lesser households having spent on these types of fodder.

It seems likely that rising prices and less opportunity to collect fodder (and hence less opportunity to avoid paying these higher prices) drive the high rise in fodder expenditure per animal by almost 50% as reported. Combining the fodder expenditures with the information on health expenditures we find an increase of almost 40%: in 2008 households spent about Rs. 6,015 per animal and in 2009 Rs. 9,628.

Table 4: Costs - per animal

Variable	Information used (and their sample averages)	2008	2009
(1) Health expenditures		1,188	1,119
	No of times animals got sick:	2.40	1.70
	Avg. cost when animal fell ill:	225	475
	Other monetary loss due to illnesses:	674	385
(1) Total fodder expenditures		4,827	8,509
	Mode of aquirement (%):		
	buy all:	15	8
	collect all:	34	23
	buy & collect:	50	68
	Time spent acquiring (hrs per week):	n.a.	5.8
(2) Actual expenditures		1,684	5,840
	Amount spent on (Rs.):		
	green fodder:	105	375
	dry fodder:	241	353
	other fodder:	442	300
(2) Value of collected		3,143	2,669
	Average cost per animal:	494	774
<b>(1)+(2) Total arosen expenses</b>		<b>6,015</b>	<b>9,628</b>

Based on these calculations, we can assess the profit of the activity, acknowledging

that we do not capture all costs and benefits. We are quite confident that we do capture the main parts, but households for example sometimes sell the dried cow dung (which can be used as a fuel for heating water, cooking, etc.) or even urine of the animal. We also do not include costs related to shed buiddling and maintenance or other activity related equipment. The presented figures are therefore just an approximation, but an approximation close enough to point to risks of the activity that are in many development programs not (adequately) addressed.

### 4.3 Net return of the dairy activity

Table 5, combines the numbers presented in Table 3 and 4, i.e. total income from dairy and total expenses. As mentioned ‘total’ stands for total as in ‘all that can be captured given the available data’, but of which we are comfortable that it captures the major day-to-day returns and costs.

It can be seen in the that the difference in net return in the two years is sharp: in 2008 households engaging in the activity earned a yearly net return of about Rs 10,000 (~USD 230) per animal and in 2009 it dropped to a loss of almost Rs. 300 (~USD 5,7) per animal.

This is not to say that households should abandon the activity. Such a suggestion would depend on calculations of foregone earnings - if households had the opportunity to engage in another activity, with at least the same return, the households could consider selling their animals and engaging in this other acticity. Nevertheless, the most common acticities undertaken in the survey area are realted to agriculture, and are therefore also likely to be affected by the drought that seems likely to have brought about the drop in returns of the dairy activity. It seems therefore not very likely that households would be able to find a viable, less risky alternative.

In addition it needs to be considered that the animals can be used as buffer stock and sold if the situation worsens.

Table 5: Net return of the dairy activity

Total income from dairy	16,956	9,354
Total expenses	6,015	9,628
Net return	10,941	-274



## 5 Conclusion & Policy Recommendations

In this study, we conduct an evaluation of a holistic microfinance intervention, also called a livelihood promotion intervention, that has at its heart the provision of livestock (cow or buffalo) to the beneficiary households.

Evaluation results in combination with a detailed analysis of main cost and benefit factors of the activity to the household reveal areas that implementing agencies should put more emphasis on than they currently do - especially if the intervention is implemented in drought-prone areas.

While many programmes combine already the asset provision (for free or through a microfinance loan) with training and veterinarian services, possibly also the linkage of beneficiaries to markets, most programmes do not consider water and fodder availability and provision in their programme design. This is although unavailability of fodder for the animals can lead to great distress to owners as it can become major cost if households are not able to collect fodder for free. This could be seen in our data, in the case of the second survey round, which was collected during a major drought period.

An extensive final report on a project funded by FAO, Pro-Poor Livestock Policy Facility, Rome and DFID Livestock Production Programme, titled "Livestock Technology Change, Livelihoods Impacts & Policy Lessons" (Rushton et al 2005) for example does not mention fodder once in their extensive recommendations.

Of the nine programmes funded by the Ford Foundation, only one has a minor window for households to access fodder in need: The programme implemented by SKS in India provides a consumption support, which should be used as a needs basis. One of the examples given is fodder for the animal.

We go a step further and suggest the implementation of a fodder insurance, which could be designed analogous to rainfall insurance.

## 6 References

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