

PALESTINE | PAKISTAN | AFGHANISTAN: LIVESTOCK

Reallocation of feed doubles livestock productivity in a year

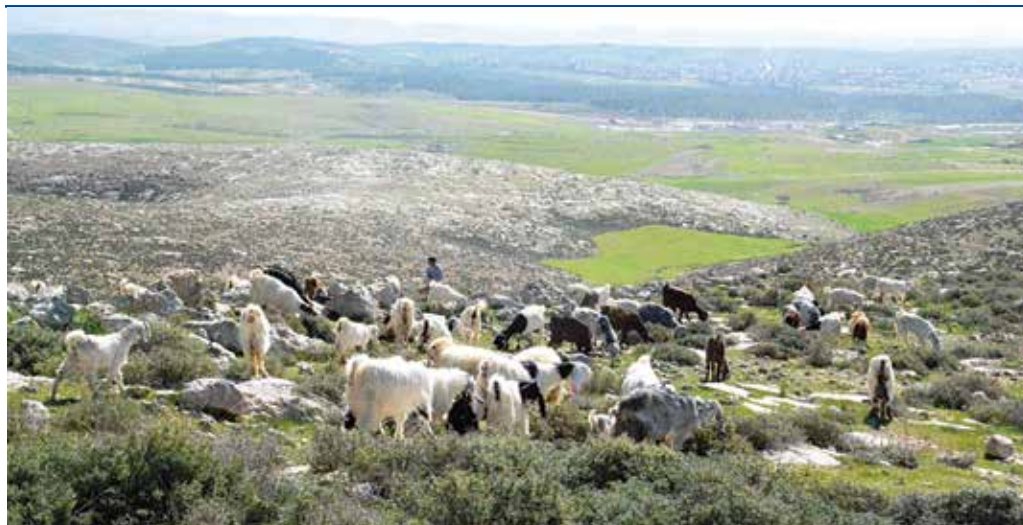


Figure 1: Sheep and goats grazing in Hebron, Palestine

Livestock productivity in pastoral and agro-pastoral systems is based primarily on the production of young stock for sale and, to a lesser degree, milk for home consumption or sale. Ensuring that the breeding female conceives and successfully raises her offspring is critical to both enterprises. Adequate nutritious feed is key both prior to mating, to stimulate egg release and conception, and again before birth, to ensure a strong offspring able to withstand the rigors of the first 3 weeks of life. But, in many semi-arid and temperate environments, feed is scarce at these times, leading to low productivity. Climate change is exacerbating the situation.

Palestinian West Bank

Livestock production, mainly of small ruminants, is a significant income source for about 30 percent of rural communities in the Palestinian West Bank. Restricted access to traditional grazing lands has forced households to depend more on expensive, imported feed and fodder from Israel. Feed is estimated by the Ministry of Agriculture (MoA) to account for 70 percent of production costs. Discussions with farmers, MoA officials and partner organizations confirmed that feed costs were the main constraint to increasing productivity. There is little that can be done in the short term to address this issue. But, focus group discussions with farmers in differing social-economic and environmental conditions all indicated that conception rates among small ruminants were low, and that deaths at or shortly after birth were high.

Behavioral approach

In its agricultural livelihoods programming in Middle Eastern and Central Asian countries, CRS has been introducing a flexible behavioral approach based on social behavior change and industry-wide best practices developed in the health sector. Simple, responsive, low-cost, low-risk practices capable of giving a measurable (30+ percent) increase in productivity are identified and promoted through short, timely trainings.¹ Due to high feed costs, farmers were providing little or no extra feed at the two critical times. Reallocation of nutritious feed to these times fulfilled the behavioral approach criteria.

1. See Agricultural Behavior Change Introduction: *Introducing social behavior change to agricultural development*

Highlights

- Lambing increase of between 40 percent and more than 200 percent in goats and high-performing sheep breeds
- No increase in feed input costs
- Reduced exposure to risk
- Simple messages clearly understood by trainees and within community generally
- Doer/non-doe analysis enabled accurate outcome assessment



Figure 2: High-performing Asaf ewe with twins (foreground), and traditional Baladi ewe (background)



Traditional practices

Initial assessments indicated that feed reallocation could increase lamb numbers by 30 percent, with an added increase in milk production since more mothers would conceive and give birth. CRS and its partners, Bani Naim Charitable Society and the Land Research Center, in Bethlehem and Hebron governorates respectively, gave two trainings of no more than an hour each to sheep and goat farmers, focused on optimal feeding practices at mating and late pregnancy. These were held just prior to mating and lambing to allow households to plan their feeding regimes, and to a male and a female member of each household, to enable equality in discussions and decision-making.

Outcomes

Forty-four percent of a sample of 55 trained farmers practiced the improved feeding regime immediately after the training. Of these, 50 percent fed more at mating and 82 percent more during late pregnancy, against 3 percent and 14 percent respectively the previous year. Farmers who changed their practice showed a high level of understanding of the key factors involved. In addition, a considerable number who did not attend the trainings were also found to have tried the practice, demonstrating the ease with which simple, focused messages and associated behaviors can be replicated when presented in a timely manner.

A post-intervention survey showed that the practices had improved conception rates and lamb survival. The productivity increase varied according to animal type and breed (Table 1)

The improved practices had little overall effect on the productivity of the Baladi breed, which is better adapted to the local harsh conditions. However, as the inherent fecundity and productivity of the other breeds increased, the effect became marked. This is highly significant as the MoA and farmers move to highly prolific breeds to increase production potential. Goats, which are often highly prolific and produce many twins, often lose many kids after birth. The improved feed during pregnancy greatly reduced these losses.

Table 1: Increase in offspring surviving to 4 weeks

Animal type	Breed	Prolificacy	Behavior	No. dams mated/HH	Av. no. offspring born/HH (% of dams)	Av. no. of offspring at 4 weeks/HH (lambing %)	% increase in offspring at 4 weeks
Sheep	Baladi (local)	Low	Improved	37	27 (72%)	21 (56%)	0%
			Traditional	62	59 (95%)	35 (56%)	
	Muklha (cross)	Medium	Improved	83	75 (90%)	68 (81%)	42%
			Traditional	38	34 (90%)	22 (57%)	
	Asaf (exotic)	High	Improved	12	16 (131%)	14 (119%)	235%
			Traditional	24	16 (68%)	9 (36%)	
Goat	Local	High	Improved	80	100 (125%)	80 (100%)	422%
			Traditional	24	8 (33%)	5 (19%)	

Experience elsewhere in the region

CRS has also introduced the concept in Pakistan as part of an emergency drought response in the semi-arid desert. During the drought of 2014-15 in Tharparkar, 2,000 vulnerable households were provided with feed and fodder for seven small ruminants for a two-month period in late pregnancy. A short training was given on the use of the feed and was open to all community members. A post-distribution satisfaction survey indicated a marked impact of this extra feed on ewe condition and subsequent milk production (Table 2). Non-beneficiaries who attended the training noted a 15 percent increase in milk production through adopting the behaviors.

Table 2: Effect of feed pre-mating and during late pregnancy on sheep productivity in drought conditions

Productivity criteria	Non-beneficiaries	Beneficiaries
Lambing %	25%	48%
Milk production	600 ml/day	800 ml/day
Ewe weight at birth	27 kg	33 kg

In Afghanistan, where the practice was introduced in mid-2017, 70 percent of farmers who attended the trainings had practiced improved feeding during ewes' late pregnancy and noted that lambs were bigger and stronger, and lamb deaths after birth were reduced. Some women also noted an increase in milk production. No quantitative assessment has yet been made.

Lessons learned

- Simple behavior changes and messaging are easily understood, rapidly tested by farmers and easily communicated to others.
- Timing of trainings immediately before the activity in the field is essential.
- Involvement of senior male and female household members in all trainings is essential since both are involved in livestock production and require equal knowledge to discuss and take responsibility for livestock activities.