



## An alternative source of milk

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*Milk is the most complete source of nutrients for children. Nothing new about that, but... ewe milk? In the Sierra region of Chiapas State, in Southern Mexico, there is a number of peasant villages that could make use of this resource, at practically no cost.*

In the Sierra region, at 3000 m above sea level, there is a small population of about 80,000 Chiapas sheep. The animals are just like their neighbours in the Highlands, except for a lower density rate that allows them access to larger amounts of forage. Where the difference is found, however, is in the people that take care of them. Unlike with the Indian shepherdesses in the Highlands (see ILEIA Newsletter 1992/3), sheep husbandry in the Sierra is a family activity all the way: children are in charge of herding the flock up to the grazing sites, and men take active part in herding, shearing, weaving and marketing animals and woolen products.

One of the most important differences in sheep husbandry in the Sierra, as compared to the Highlands, is the lack of a religious relationship with the animals. To the Spanish-speaking population of these villages, sheep are not sacred and thus can be part of the diet. The main contribution of sheep, however, is related to agriculture, since manure is efficiently used for the potato crop, which is the major

source of income for the average peasant family in the Sierra region. Animal and wool sales come second.

Our initial approach to these villages was to find out their sheep management practices, as well as their particular interests regarding livestock production. Through informal interviews we found that manure was the most important factor, which is related to the farming activities that traditionally sustain these villages. The system of managing the herd includes a continuous rotation of the sheep shelters within the crop land, to make sure that all faeces and urine are incorporated into the soil.

It was somehow surprising to learn that wool had very little use, as compared to its importance within the Indian villages in the Highlands. People told us about how the 'elders' used to make mattresses, pillows and blankets out of wool, but that the new generations were not interested, and preferred instead to be hired as labourers in the lowland coffee plantations.

We also found that Sierra villagers, especially children, have very low intake of animal protein. Because sheep are a kind of family 'savings account', people are not very inclined to eat them frequently, and we decided to try a new approach to solve this problem.

### Chiapas sheep

This local breed is virtually the same throughout the mountains of Chiapas State, including the Highland and Sierra

regions, and it comes directly from several indigenous breeds from Spain, some of which are nowadays at the top of the list among milk-producing European sheep breeds.

After a series of characterisation studies, we determined that Chiapas sheep had retained some of the genetic potential for milk production from their Spanish ancestors. They are certainly small animals (25-30 kg) but, when measured against their weight, they can produce almost as much milk as the present Spanish breeds, although they have not been systematically selected. In animals kept at our experimental station, we calculated an average milk production of at least 425 ml/day during a 90-day lactation period, with minimum supplementation. This is less than half the production of Spanish breeds (1000 ml/day), but Chiapas sheep have also only half their weight.

### A new technology

The different concept of sheep husbandry among Highland Indians made it difficult to promote a technology that would make use of the milk potential of the local breed. We could not propose an adequate technology for milking sacred sheep. However, the situation in the Sierra region is different. People are basically Spanish-speaking, non-Indian peasants and no religious laws prohibit changes in sheep production. We decided, in an experimental stage, to introduce a new technology in

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 Drawing: María Díaz Gómez (12)

the form of adequate management of the herd for milking purposes.

The design of a management system for milking ewes in the Sierra region cannot be copied from European standards, so far our only direct reference. Animals are different, as are the environment, the local people, their needs and their culture. We took into consideration as many factors as we could, and ended up with the following scheme.

### Managing the herd for milk

During a lactation period of about 90 days, beginning late November, every newborn lamb is allowed a period of 72 hours with its mother to ensure proper recognition. After that, lambs are isolated at night (7:00 pm) in a separate, protected shelter and the ewes are milked by hand early the next morning (7:00 am). The flock remains together for the rest of the day for grazing, until the next isolation of lambs.

We have used this management scheme in our experimental flock, with daily milking of ewes for over 140 days, to establish lactation curves in Chiapas sheep. Against our initial expectations, we found no detrimental effect on the growing patterns of partially isolated lambs. On the contrary, these lambs performed even better than those in the control group.

### Shepherds modify the technology

The previous milking scheme was presented to a selected group of shepherds from the Sierra region, who in turn introduced it into their traditional management system on an experimental basis. As it turned out,

these people not only adopted this milking scheme, but modified it, so it could work better for them. They decided to shift the isolation period in order to keep the lambs separated from the mothers during the day, milking the ewes in the afternoon and leaving the flock together at night. They did this because they did not want to hear the lambs crying all night long, and it seems to be working very well.

During the first lactation season, the men of three peasant families took over the daily hand-milking of the herd and followed the suggested management scheme. Milk was assigned for fluid consumption by the children, mixing it with coffee.

With an average herd of about 15 sheep (70% females) a family could obtain as much as 2 liters of ewe milk (7% protein) during a 90-day lactation period. This volume corresponds to a 200 ml/day yield per ewe, which is half the amount that we had calculated with our experimental animals. There is no mistake. Chiapas ewes are able to produce up to 425 ml/day as an average for the lactation period if they are hand-milked twice a day. But managing the animals in the villages is different. In the Sierra region of Chiapas, lambs are very important: they are usually not sold, nor eaten, but left as replacements. People would not like to have these lambs without their mothers' milk, and the villagers cannot afford to buy commercial supplements. Thus, from now on, our parameter will be the amount of milk produced only during a 12-hour isolation period, plus a growing lamb.

### Chain reaction

This milking scheme was designed for the needs and actual living conditions of the peasant dwellers of the Sierra. They did not need to expend any money and only invested a minimum amount of extra labour in order to adopt the milking man-

agement scheme. They are now obtaining fresh milk for their children during a very difficult period (winter and early spring) when there are no vegetable crops available. At the same time, they still keep raising their lambs.

The short-term response of the Sierra villagers to the new management proposal has been very impressive. During a second lactation season, the initial number of three families involved in the milking of ewes has increased to an encouraging number of 20, in four different communities. The expected 'chain reaction' was, in fact, observed. We know that 20 families are still not a significant part of the population in the Sierra region, but our input has been kept to a minimum: one single visit of some villagers to our experimental facilities. This suggests that sustainability of this approach is quite good.

Furthermore, the management scheme has been adopted and modified by each shepherd according to individual needs. Some of them leave their lambs within fenced areas near their household, while the rest of the flock is taken into the grazing areas; others keep their lambs within the shelters, where hay or freshly cut grass is carried in every morning; some other shepherds take care of the adult sheep and send one of the children to a different grazing site along with the lambs.

### Wool is rediscovered

A good number of these shepherds used to go to the lowlands, to be hired as labour for a ridiculously low wage. Now they are staying at home, caring for their sheep, milking the ewes, making again woolen blankets and pillows either for their own use or to sell. Sierra dwellers are also learning to shear animals and to classify wool, which is sold directly into the Indian market in the Highlands, where fibre prices are considerably higher.

For a small group of peasants from the Sierra region, milking ewes was a totally new experience. For their children, it has been a unique opportunity to obtain high quality nutrients on a regular basis. We are pleased to see that this important change in habits only required little input to get started, and should not require much more to keep going.

### References

- Perezgrovas, R (ed) 1990. *Los Carneros de San Juan*. Centro de Estudios Indígenas. Universidad Autónoma de Chiapas. Tuxtla Gutierrez, Chiapas, México.

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Photo: Raúl Perezgrovas

A typical Chiapas ewe with her lamb.