

New Zealand Society of Animal Production online archive

This paper is from the New Zealand Society for Animal Production online archive. NZSAP holds a regular annual conference in June or July each year for the presentation of technical and applied topics in animal production. NZSAP plays an important role as a forum fostering research in all areas of animal production including production systems, nutrition, meat science, animal welfare, wool science, animal breeding and genetics.

An invitation is extended to all those involved in the field of animal production to apply for membership of the New Zealand Society of Animal Production at our website www.nzsap.org.nz

[View All Proceedings](#)

[Next Conference](#)

[Join NZSAP](#)

The New Zealand Society of Animal Production in publishing the conference proceedings is engaged in disseminating information, not rendering professional advice or services. The views expressed herein do not necessarily represent the views of the New Zealand Society of Animal Production and the New Zealand Society of Animal Production expressly disclaims any form of liability with respect to anything done or omitted to be done in reliance upon the contents of these proceedings.

This work is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](http://creativecommons.org/licenses/by-nc-nd/4.0/).



You are free to:

Share— copy and redistribute the material in any medium or format

Under the following terms:

Attribution — You must give [appropriate credit](#), provide a link to the license, and [indicate if changes were made](#). You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

NonCommercial — You may not use the material for [commercial purposes](#).

NoDerivatives — If you [remix, transform, or build upon](#) the material, you may not distribute the modified material.

<http://creativecommons.org.nz/licences/licences-explained/>

Animal Production in eastern Turkey

K.F. THOMPSON AND N.D. HART

Lincoln International Ltd., Box 84, Lincoln University, Canterbury, New Zealand.

ABSTRACT

Subsistence village livestock farmers in the eastern provinces farm approximately 30% of the sheep and cattle of Turkey. Stock are housed for winter and grazed on communally owned and managed pastures for the remainder of the year. Typically farmers have 1 to 6 cows and 30 to 100 sheep or goats. A survey of 91 farmers showed that 55% of the cattle were of the local Anatolian breed and 37% were of exotic cross. Calving interval averaged 12.5 months, excluding the 10% barren cows. Female progeny were retained as herd replacements, males were sold between 8 and 18 months old to specialist cattle finishers who feed cattle indoors and aim to make a US\$50 to US\$120 margin per beast in a 4 to 6 month period. Sale of surplus lambs and milk products are the main sources of income for sheep farmers. Flocks averaged 80% to 100% lambing with lamb mortality ranging between 5% and 40%, depending on the level of winter feeding. Technology exists in Turkey for the improvement of winter feeding, and intensive lamb finishing but technology transfer is constrained lack of experience staff and the limited training in livestock production of extension staff.

Keywords: eastern Turkey; sheep; cattle; extension.

INTRODUCTION

Turkey has about 55 million people, 46 million sheep, 14 million goats and 13 million cattle. Approximately 30% of all livestock are in eastern Turkey where subsistence livestock farming is the main enterprise of the rural population. Development projects have been undertaken in eastern provinces with the aim to improve living standards of rural people. A major component being the provision of permanent water to villages and improved roading, irrigation, power and telephone reticulation. Additionally these projects aim to improve livestock production and improve the effectiveness of the rural extension service.

The information about sheep and cattle production presented in this paper was gained during the livestock and extension consultancy to the Bingol-Mus Rural Development Project. Some constraints to improving livestock production are outlined and discussed. Bingol and Mus are provinces in eastern Turkey, situated at over 1200 m above sea level. Agriculture is the predominant industry and there are no manufacturing activities that provide significant employment. Sheep and cattle farming predominate, although there is limited cereal, sugar beet and tobacco cropping in the alluvial river valleys.

Livestock systems

Most families have 30-100 sheep or goats and 1 to 6 cows. Stock are housed for about 4 months from the end of November due to snow. Animal houses are poorly drained, have minimal ventilation, are dank and dark and provide an unhygienic situation for livestock and an unpleasant working environment. Lambing and calving occurs in February and March while stock are housed.

All grazing lands are commonly owned and managed. As snow melts in spring, pastures close to the village are grazed for

about 6 weeks and then stock are taken to higher ground and pastures near a village are closed to grazing so hay can be made. In late summer (August) stock return to pastures closer to the village. Decisions as to the timing to close for hay are made by village consensus. Common grazing land is unfenced and livestock are herded or shepherd while grazing. When in reasonable proximity to a village livestock are housed overnight, when further away a herder is with them continuously.

Cattle

The cattle industry is stratified. Farmers in villages supply surplus young cattle to finishers located usually near a processing works. Cattle finishers purchase cattle at 8 to 18 months of age for prices equivalent to US\$200 to US\$400, depending on size and breed. Crossbred animals (e.g. Brown Swiss or Charolais crosses) can be worth about US\$130 more than those of straight Anatolian breeding. Irrespective of season, finishing cattle are fed indoors for 4 to 6 months and when slaughtered, payment is on a carcass weight basis. Cattle finishers aim to make a margin (selling price minus purchase price and feed costs) of US\$60 to US\$120 per head and turn over 50 to 200 cattle each year. In Turkish society beef finishers are relatively wealthy and often employ labour to feed cattle and clean animal houses.

The dairy industry in eastern Turkey is poorly developed. Few farmers keep cattle for commercial dairy production. Milk from sheep, cattle and goats is made into butter and cheese and used within a village.

Village farmers keep cows to provide an income from the sale of surplus stock. Farmers consider it important for cows to calve annually in the spring, although the fertility level differs between herds. To determine calving interval and fertility levels in village herds, 91 village farmers with a total of 304 cows were interviewed by a Turkish consultant. The major genotype was the local Anatolian breed which com-

prised 55% of cows surveyed. This breed is small in size with cows commonly about 200 kg, has a slow growth rate but an ability to survive despite being housed in dark, dank conditions, where they are underfed particularly in protein, and where diseases such as foot and mouth are endemic. Exotic crosses and pure bred Brown Swiss or Holstein account for 37% and 8% of the herd respectively. The herd age is relatively young, 87% of cows having 5 or less calvings. Calving occurs from December to July with 80% of calves born during the spring months of February, March and April. The average calving interval of in calf cows was 12.5 months and ranged from 10.5 to 15 months; 10% of cows were barren. Younger barren cows were retained.

Measurement of milk production was not obtained as local staff did not understand the value or importance of recording production despite training and being provided with scales to weigh milk. No data on cattle liveweight was collected as scales were not available and there are no established relationships for girth size and live weight for Anatolian cattle.

Sheep

Sheep are either white or coloured Karaman, a fat tailed breed used historically in this area. Most farmers have between 30 to 100 sheep, and wealthy farmers may have up to 300 animals. Lambing rates (lambs born/ewes lambing) are commonly 80% to 100%, with lamb losses (birth to weaning) from 5% to 40%. Higher than normal lamb losses occurred in 1992 when heavy snow prolonged the indoor winter feeding period resulting in most flocks being grossly underfed during early lactation. Lambs are sold according to farmers need for cash and are often wintered and sold as yearlings. Sheep are shorn annually in summer and ewes produce 1 to 2 kg of very coarse wool. Sheep and goats are the main providers of milk, and are hand milked for 4 to 6 months.

Feed budgets prepared for 12 farmers at the start of winter (November 1992) indicated that most had sufficient forage for their sheep and cattle. Feed levels averaged 1.3 kg DM per sheep per day for a 120 day housed feeding period. Late cut meadow hay with a high proportion of stalk, or cereal straw made up over 80% of the ration. Most of this was chaffed. The crude protein level of the meadow hay and cereal straw was measured at 3% to 4%. Barley grain, and lucerne, vetch or chick pea hay were recognized for their high feed value and, with barley based meals comprised less than 20% of the winter feed.

SUITABLE TECHNOLOGY

A priority for the consultancy was to demonstrate methods of improving the feed quality for housed livestock. Two approaches were taken using technology available in Turkey. One was to improve the feeding value of straw by treatment with urea and the other was to grow more forage legumes.

Techniques for ammoniation of straw through treatment with urea and wet ensiling (Preston and Leng, 1987) had been demonstrated in Turkey as part of the FAO managed rural development project in Konya province. The process involved building a stack where each 1000 kg of chaffed straw was soaked in a solution of 50 kg urea in 500 kg of water. The

stack was then sealed and left for a minimum of 3 weeks. Analysis of samples taken pre- and post-treatment showed an increase of crude protein levels, (determined by Nitrogen content) from 3% to between 10% and 12%.

To increase the area of forage legumes grown, demonstrations were undertaken to familiarise extension staff and farmers with suitable forage legumes and encourage appropriate seed bed preparation and fertilizer applications. Sainfoin (*Onobrychis vicifolia*) in rotation with cereals was used particularly in dry and marginal locations. Hungarian vetch was used in place of fallow between successive cereal crops and could increase the hay yield by 6 tonne of hay per hectare.

Nitrogen fertilizer is widely used on all crops including lucerne. The standard recommendation for maintenance topdressing of lucerne is 70 kg N/ha. Lucerne grown on areas with a low Phosphate soil test (eg. 30 to 50 kg P₂O₅/ha) gave a response to phosphate application (70 kg P₂O₅/ha) of 50% to 200%. This increased the hay yield for village farmers to 18 to 20 tonne of lucerne hay per hectare.

Other demonstrations included intensive lamb finishing to market lambs at 6 to 8 months old and modifications to animal houses to improve ventilation and reduce disease.

TECHNOLOGY TRANSFER

Effective extension work and adoption of technology by farmers was constrained by organizational, social and technical aspects. Many extension staff were young and relatively inexperienced, 65% were in their first job and on average had worked for only 4.5 years. The eastern provinces of Turkey are considered to be unattractive locations and despite salary premiums for working in the east, staff leave as soon as they can after finishing their required 3 year minimum in the east. For example, in 1993 two thirds of the 120 professional staff we were in contact with in Mus province applied for transfer.

A survey of extension staff indicated that although they considered livestock extension work a priority, there was no professional group who considered it their responsibility. The main extension agents in the Turkish extension system are technicians who have received four years of Technical school specialist education. In this education system cropping and garden production predominates the curriculum and little is learnt about livestock production. Technicians are supported in their work by university graduates who have specialized in one aspect of agriculture. Only those that take Zootechnology (Animal Science) have training in livestock and very little of this is of an applied nature. Veterinarians and Animal Health Technicians see their job as undertaking the Government directed extensive animal vaccination programmes to control/prevent major disease problems such foot and mouth disease, sheep pox, anthrax, and rhindepeset.

The extension service in Bingol and Mus provinces was involved with programmes where legume seed was provided free to many farmers. Technical information on seed bed preparation or crop management was not provided nor were extension activities undertaken to show the resulting crops to farmers or discuss benefits of adopting such change. Our assessment was that when undertaking demonstrations extension staff had little understanding of the need to compare

new technology with existing farmer practice or the importance of measuring production to quantify the financial benefits from adopting the preferred technology. This confirmed our impression of the relatively low level of understanding by the extension staff of effective communication methods. Our task was to assist in the improvement of the extension activities and a comprehensive programme that involved over 100 demonstrations was used for skill and technical development of extension staff as well as technology transfer to farmers.

We encountered technical limitations to technology transfer. For example a third of the staff would not accept that a dramatic increase in lucerne yield would occur in response to phosphate fertilizer application. These people had been taught that phosphate fertilizer should never be applied to the ground surface if it could not be worked into the soil. Even when they had inspected demonstrations where yield increases were obvious, they would not undertake similar demonstrations nor would they sample soil for analysis to determine possible fertilizer requirements.

In summary there is considerable technology available in Turkey that could help farmers improve livestock productivity and hence their standard of living. The major problem is the transfer of relevant technology. This is constrained by a lack of training in livestock production and a lack of

understanding of the extension process among professional staff. Remedies to these are not easily achieved by consultants within short term development projects.

ACKNOWLEDGEMENTS

The authors were on contract to the Government of Turkey, on a project financially supported by the International Fund for Agricultural Development. The authors thank the Government of Turkey for permission to present this paper. We gratefully acknowledge the cooperation and support from Mr Ibrahim Guburz the project coordinator. The friendship, cooperation and support from Mr Zulkuf Yildirimoglu and Mr Mehmet Dogan the Provincial Director's of Agriculture of Bingol and Mus respectively, and their staff, was essential for the success of the consultancy, and we express our gratitude.

REFERENCES

- Preston, T. R., Leng, R. A., 1987. Matching ruminant production systems with available resources in the tropics and sub-tropics. *Pub.* Penambul Books: Armidale, Australia.