

## Conclusions

The general objective for manufacturing UMB in Bhutan was to present a scientific approach for better livestock production within the framework of the utilisation of local feed resources. The detailed laboratory tests and field demonstration on the application of UMB illustrated the following points.

1. Oven-dried UMB, based on *Til* cake, was the most suitable for nutrient supplementation in terms of its hardness and nutritive value.
2. The temperature-controlled drying system for hardening UMBs was cheaper and more commercially viable than the use of chemical agents.
3. Use of oven-dried UMBs was a safe and practical approach for correcting nutritional deficiency in farm animals.
4. UMBs were palatable to all ruminants, *yak* took a longer time to finish a block than cattle and sheep.
5. The field demonstrations of UMB technology in high altitude areas indicated a high degree of acceptability on the part of livestock owners.
6. UMB supplements markedly improved milk production in dairy cows given fibrous diets.
7. The application of UMB technology in village conditions remarkably increased the net return from dairy enterprises.

The preliminary work for commercial production of UMBs in Bhutan was successfully completed. The outcome of the experiences on UMB technology and its broad application in ruminant production in Bhutan revealed the following.

1. The application of UMB technology is highly appropriate in those countries or regions where the agricultural production system is based on the integration of crop and livestock farming.
2. The technology can also be advocated to supplement feed in those areas where severe feed deficit problems are experienced each year.
3. The supplemental nutrient package, in the form of UMB, is widely accepted as the most appropriate technology providing essential nutrients to ensure that ruminal microbes digest local feed resources efficiently.
4. The prerequisites needed to develop UMBs are adequately available in Nepal and other HKH countries.
5. In order to improve the nutritional status of livestock in Nepal, UMB technology is feasible and promising.
6. A detailed study on the possibility of manufacturing nutrient blocks in Nepal is recommended.