

3.5. SOME COMMON RECOMMENDATIONS IN ANIMAL PRODUCTION SYSTEMS RECONSIDERED

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INTRODUCTION

This chapter discusses common beliefs, recommendations and assumptions about animal production that are held by either the scientific community or by farmers. Some of these may need a second consideration in the face of new information and changing farming systems. Therefore, the purpose is to encourage rethinking of traditional recommendations, taking into account the whole farming system approach, farmers' perceptions, indigenous knowledge and applicability of extension messages and management practices under different conditions. While mentioning farmers' perceptions, it needs to be emphasised that small farmers account for a large proportion of the farming population in India. They are therefore, a major target group and focus of most discussions of this paper. It is the intention of this chapter to provide food for thought, not so much to take one position or the other, nor to provide answers.

COMMON BELIEFS - SOME CASES

Traditional farmers' knowledge and scientific reasoning are both based on time tested experience. However, something that is true in one place or time, may be untrue in another condition. Particularly in rapidly changing and regionally variable systems, it is, therefore, useful to test and retest existing ideas. Some of them may reflect wisdom for other farming systems than prevalent in India. The following topics will be briefly discussed:

- green fodder feeding
- efficiency of high producers
- the need for early weaning
- balanced feeding
- oxalate poisoning
- "scientific requirements"
- technology and progress
- straw is poor quality feed
- the interest of the farmer

Green fodder feeding

The need to provide green fodder on a year round basis for maintaining crossbred cattle is a common recommendation. Green fodder requirements are often worked out and deficits projected. However, only a small fraction of farmers with crossbreds are able to provide green fodder more than a few months in a year and still their animals produce milk. Also, large farms as well as many smallholder dairy systems in many parts of the world produce milk by feeding hay or straw for a considerable part of the year. Still in India, many meetings or discussions are held to orient farmers with respect

to green fodder production and its benefits. Demonstrations are arranged as if a new technology is being introduced, and sometimes it is stated that except for farmers from Haryana, Punjab or Western U.P. or a few pockets in other States, hardly anyone cultivates fodder.

The reality might be different in a few ways. In the first place, fodder has traditionally been produced in many farming systems or states besides Haryana, Punjab or Western U.P. and many farmers are well aware of the usefulness of green fodder. Authentic records are available from the British Period (early 19th century) where colonial officers described indigenous husbandry practices based on cultivation of sorghum, pearl millet and lucerne for the feeding of livestock. In the second place, even though nutritionally the fodder can be called good feed, many farmers cannot afford to spare land for production of green fodder. Particularly, the systems approach tell us that the introduction of one technique will affect the output of other parts of the farm. Therefore, it may not always be profitable to grow grass, even more so for low producers. In the third place, the production of a cow may be so high in terms of milk, that even with extremely good fodder, the nutrient requirements can only partly be covered with good green fodder. At such high levels of output, fodder like grass or straw is fed to provide fibre to maintain rumen function rather than to provide energy, protein or vitamins. The feeding practices in urban dairies are a case in point (#4.3.).

Efficiency of high producers

High producing, fast growing and regularly breeding animals are often believed to be most profitable and efficient. However, in the case of many small farmers this may not always be true. There is a need to critically

analyze and understand aspects like quality and cost of feed, returns from milk and other products, availability of feed/fodder, labour, housing, veterinary care, etc. A well-known Indian saying goes as follows:

"Kuch paane ke liye, kuch khona hai"

It implies that in order to gain something one has to lose something. The cost to achieve high output of a single commodity may simply be too high, particularly for small farmers who have no access to other supporting agencies like veterinarians, reliable artificial insemination services or fertilizer inputs, marketing or management information. Money or other resources spent on cows can be often be used with more benefit on other farm activities, e.g. cropping, and benefits like dung, draught and saving accounts from low producers are often underestimated.

In the same vein, many reports state that indigenous animals are uneconomic and non-descript animals are often referred to as unproductive. It is necessary to rethink some of these aspects since for many farmers the animals are productive even if they produce only little milk. Many times milk is not even the (only) product for which cattle, buffaloes and goats are maintained. The concept of productive cow varies from farmer to farmer depending upon the objective of rearing the cow. In some parts of India, it is not uncommon to find the farmers using heifers and dry cows for draught purposes. In such situations these animals appear productive to the farmers, in spite of the low milk production, and thanks to the indirect effect on crop output.

Fortunately, there is a change in the approach of economists and animal production officers in the last few years. By using a farming systems

approach they are forced to take most of these aspects into account, as is done customarily by many farmers. The importance of social aspects like prestige and economic aspects like labour, avoidance of use of cash, convenience etc. is now increasingly recognised. It alters the way one looks at unproductive cows. Products like ghee, male animals for draught, security, and dung also make a significant contribution to the economy.

The need for early weaning

One common management recommendation is to wean calves at an early age. Early weaning is considered to be a scientific way of calf rearing. But one wonders why suckling is marked as unscientific? If science is defined as a process of repeated observation and testing of ideas, would not farmers practice/knowledge imply at least some scientific methodology? Practically speaking, on many small farms, and even on some institutional farms, early weaning creates problems. Early weaning is beneficial when the price of milk is high and where the alternative calf rearing feeds are well available, a condition that does not apply everywhere. In this respect however it is necessary to stress that farmers' practice is not beyond "strange" concepts either (#2.3.). Unbelievable as it may seem, many farmers believe that colostrum feeding to new born calves is harmful. The effects like diarrhoea and worm infestation are ascribed to colostrum feeding, but it may not be due to colostrum per se. However, the fact remains that in spite of years of effort to promote colostrum feeding soon after calving, it is still not a commonly accepted practice. In some areas colostrum is fed to new born calves only after the placenta is shed and some farmers offer colostrum to rivers as a form of sacrifice. It is also common in some places for farmers to sell colostrum at a high price as it is used for preparation of sweets.

Balanced Feeding

Similarly, use of balanced concentrate mixtures is emphasised as if it were the most critical aspect of proper feeding. The reality is that balancing of the entire ration (#3.1.) is essential rather than harping on the use of balanced concentrate mixtures only. Also the prices of balanced feeds may be prohibitive and moreover the required mix differs between animals and production objectives. Balanced feeding makes little sense to dairy farmers that have neither the knowledge to compute the ration, nor the facility to feed the animals separately on the basis of their body weight and production requirements. Since the very concept of requirements depends on economics it is impossible to provide a nationally valid standard for balanced feeding (#3.1.).

Oxalate Poisoning

Excess oxalates may cause gastro-intestinal irritation, but the major effect is that of precipitation of blood calcium resulting in muscular weakness and paralysis. However, the stress on oxalate problems appears to be a little excessive. Oxalates are normally metabolised in the rumen and even the continued ingestion of oxalates in small quantities increases the ability to decompose the oxalate. In addition not all the oxalate ingested is absorbed, and oxalate "poisoning" occurs only when large quantities are suddenly ingested by the animals.

Scientific Requirements

Scientific requirements, or similar terms, are expressions used in many technical publications or textbooks, often based on experiences in other countries, times or farming systems. The feeding tables of NRC, ARC or

ICAR are in a sense no more scientific than data sets collected in the so called *ignorant* or illiterate minds of farmers with vast experience. Both contain fact and fiction. Also, scientific recommendations can appear to be correct, but they can at the same time be irrelevant for the particular farming system. The major points of difference where scientists and farmers might misunderstand each one are such as:

- **the evaluation criteria of feeds.** Scientists use measures such as TDN, degradability, ME and CP whereas farmers use indirect criteria like effects of the feed on butter fat content, intake of feed, skin appearance, dung texture etc. The scientists rely more on indirect measurements that may not mean anything to the farmers. Better translation of "scientific" measurements to field criteria might solve a large part of the disagreement between science of farmers and researchers (Table 1, in #3.3.);
- **the production objectives.** Whereas many scientists aim for high production of a single commodity, farmers look at other criteria or their combination, e.g. milk, draught and dung. Many scientists and policy makers aim at high biological output of a single product, whereas, most if not all farmers aim for economic output which may imply low milk yield (#2.2.).

Good interaction between farmers and scientists can pave the way for better understanding. It will even show that many criteria are the same, though expressed differently. Ultimately, there may be differences in objectives and criteria between farmers (men and women) of different farming systems, ie. to talk about farmers' versus scientists' perceptions is a serious oversimplification.

Technological progress

Technology is often seen as the solution to problems or as a way to progress. The expression "necessity is the mother of *invention*" shows however that application of a technology can be a response to a need, rather than a step on the way to progress. In most cases, the researchers work on a problem which they perceive as a farmers' need though the farmers may not really want it. And what is progress for one farmer, may be a loss for another farmer. For example, it could be that farmers starting to feed treated straw now have insufficient straw left to give it to the labourers. Agrochemicals can save on labour, but they rid other people from their jobs and landless animal keepers from weeds for their cows or goats.

Straw is poor quality feed

Straw is commonly believed to be poor quality feed, but is this true? For many farmers in low input systems straw is an extremely valuable feed in times of feed shortage. Even for farmers in high input systems, straw may have high value, e.g. in peri-urban dairy systems where straw is a valuable source of fibre to buffer rumen acidity, to provide structure for better digestion, or to prevent low butter fat content in the milk. In low input areas with seasonal droughts, the straw is valuable because it can be the only way to let animals survive. The value that the farmers attach to the straw also differs. Farmers in Haryana and Punjab perceive wheat straw to be superior to paddy straw, whereas farmers in Gujarat consider the reverse to be true.

The farmers' interest

Sometimes, everything is believed to be alright if "the scientist" listens to "the farmer", as if both scientists and farmers come only in one kind.

Nothing is less true, because some farmers are lazy, others are hardworking, some are cattle keepers and others only cultivate crops. Even husband and wife may disagree on priorities just as well as father and son (#2.1.). A single solution and problem for each one of the actors in development is therefore unlikely to be found. In fact, clashes of interest may occur. Lately, the contribution of women to agriculture and the existence of woman headed families became rightly recognised. Males are generally considered superior to females in terms of their prevailing labour wages/hiring charges, and some economists consider one male as equivalent to two women or four children. It is time that those standards be reconsidered.

CONCLUSION

This chapter uses a number of cases/exceptions to illustrate that standard concepts may need to be reconsidered, in the light of new developments as well as due to differences between farming systems. A number of these concepts and issues in ruminant nutrition and development of livestock systems are discussed. They may have been true at one point time or in a particular farming system, but if they are extrapolated to other systems they may do more harm than good. No definite answers on each of these can be given but the points are made to provoke thinking and further research. Improved interaction between farmers and scientists paves the way for improved communication/ collaboration.

SUGGESTED READING

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