2.3. INDIGENOUS TECHNICAL KNOWLEDGE AND LIVESTOCK

S.V.N. Rao, A.W. Van Den Ban, D.V. Rangnekar, and K. Ranganathan

INTRODUCTION

A common question raised by extension and research workers is "Why don't farmers follow the advice that we give them?" In fact, research and extension staff tend to blame farmers for rejection or non adoption of technologies without realising that the farmer may have valid reasons for doing so. However, lately the scientific and extension community has started to appreciate that the rejection of technology may be due to unsuitability of the technology to the farmers' situations rather than farmers' ignorance. Fortunately, there is a growing realisation on the part of researchers and extensionists for the need to study and understand the farmers' situation before suggesting changes. As a result, the emphasis in development shifts to the use of RRAs, zoning and farmers participation in choice and design of technology, bottom up communication and respect for farmers' wisdom. This itself has led the scientific world to appreciate the role of indigenous technical knowledge (ITK), also referred to as traditional knowledge/wisdom. It is evolved by members of the farm community and passed on from generation to generation, or developed on the basis of recent

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experimentation by farmers. ITK is unique to a given culture and society, but it has value also for the scientists and planners that are involved in development projects. This paper provides a comparison of ITK with modern practices, it discusses possibilities to use ITK and problems associated with ITK.

THE NEED TO STUDY ITK

Attempts to impress researchers with the need to study traditional animal husbandry practices were already made in the late sixties (Verma and Singh, 1969). The study and appreciation of ITK is important because:

- ITK may have scientific basis and its technologies could be transferred to other similar farming situations;
- documentation and screening of ITK is necessary before the valuable information is lost for ever;
- ITK may be an alternative, a substitute or a complement to modern technology;
- ITK may generate ideas for future research;
- it is often easier to secure adoption of ITK than modern technology.

PROBLEMS OF ITK

Each technology or concept has limitations, and ITK is no exception, e.g.:

- the scope for improvements based on ITK is limited to what can be done with local techniques, materials and genetic resources;
- many new developments (genes, techniques, materials) may be unknown, and can therefore not be explored with the informal system;

- the informal system has neither the necessary forward perspective, nor the information to anticipate opportunities and constraints arising from changing environments;
- the indigenous materials and methods used vary from area to area, because ITK is unique to a particular culture.

COMPARISON OF ITK WITH MODERN PRACTICES

ITK may be old, but it need not be outdated. In fact it can very well be compared with modern practices in a number of situations. ITK is farmer oriented and evolved by the farmers. Modern technologies are developed by researchers and often not suited to the local environment. ITK is passed on and modified from generation to generation and from farmer to farmer, whereas modern technologies are communicated from researchers via extension personnel and/or farmers.

ITK is compatible with the local situation and easy to adopt, being often less dependent on the use of external inputs. The modern technologies may or may not be compatible with the existing situation of the farmers and they may need external inputs for adoption. For example:

> *The traditional practice of applying turmeric and mustard/coconut oil to wounds is very easy to adopt, whereas modern veterinary practice involves the use of external inputs like antibiotic preparations and sometimes the services of a stockman or the veterinarian to treat the wounds.*

ITK is not well documented and there is only a start of an organised effort

to promote it. On the other hand modern technologies are very well documented and there is a sustained effort mostly by the government institutions to promote them. Some organizations, e.g., the Indian Institute of Management in Ahmedabad (HONEY BEE) and SEWA in Tamil Nadu, have only recently started to document and circulate available information on ITK. For example:

> *The administration of syrup containing Ajwain, Black pepper, Soanf, dried ginger, jaggery etc. to the freshly calved animals is a tested practice to facilitate expulsion of the placenta. Though it is being practised by the farmers as well as in dairy farms maintained by institutions like NDRI, it has never been documented.*

ITK is often considered to be unscientific and primitive, whereas modern technologies are seen as advanced. For example:

> *Most dairy farmers house the animals in sheds made of locally available materials such as wood, coconut or palm leaves, paddy straw etc. These sheds appear primitive but, they are economical and sustainable. The so-called scientific recommendations about modern cattle sheds are often too expensive for small farmers conditions.*

Traditional technologies are specific to local situation, because they are based on locally available inputs, whereas modern technologies are often incorrectly considered as having blanket application to all the situations. For example:

> *In districts of the Eastern Coast of India (Andhra Pradesh,*

Tamilnadu, West Bengal) almost all farmers maintain an earthen or stone or cement pot in a corner of the house to fill it with rice washings, gruel, gram husk, rice bran, vegetable scraps, excess rice etc. This kitchen waste serves as a feed supplement to the animals. Although this practice is followed only where rice is the staple food, the modern technology of offering compound cattle feed is considered as applicable to all dairy farming situations.

It is high time to consider ITK as complementary to scientific knowledge especially in its capacity to provide non-commercial solutions to location specific problems. It is necessary to understand that the information from so-called scientific research alone is not enough to solve most problems in livestock farming.

POSSIBILITIES TO USE ITK

The use of ITK offers possibilities depending upon the farm system in which one is operating, and ITK can be complementary to modern science. For example:

The practice of chaffing of fodder was complemented by the researchers by designing and making available the chaff cutter to the farmers. The chaff cutters were very well accepted even by the resource poor dairy farmers in Haryana, Punjab, Uttar Pradesh etc. However, these were not popular in the states of South India where chaffing of fodder is not a practice (#4.6.2.).

Equally so, the use of herbal medicines in combination with allopathic drugs in the treatment of livestock diseases is common in all parts of the country. Ethno-veterinary medicine depends on the indigenous knowledge, skills,

methods and practices pertaining to the health care of animals. (See Mathias-Mundy and McCorkle, 1989 for a Bibliography). Some of the age old methods are still being practised in the organised herds because of their merits. For example:

> *Feeding of concentrates to the animals at the time of milking is one such example which is very common throughout the world. Similarly many dairy farmers in Indian villages milk the first few strippings on the floor, even though they do not know the scientific logic that the fore milk has maximum bacterial load which can reduce the keeping quality of milk if mixed with the clean milk. However, in organised herds this milk is used for mastitis testing by stripping the fore milk from all the quarters on to strip cup.*

At times the use of a traditional practice may **generate research ideas** to the researcher. For example:

> *Feeding of cotton seed, cotton seed cake and oil to milk producing animals was traditionally practised by the farmers in Gujarat. However, this practice was considered by the researchers as of less value and they tried to dissuade farmers not to use it as a feed till they discovered its value as bypass protein (Pradhan et al., 1993; Rangnekar, 1993; #3.4.).*

DOCUMENTATION OF AVAILABLE ITK

It is well recognised that farmers are a rich source of information. Already, there are a number of native animal doctors (who are mostly farmers) and a traditional system of low-cost veterinary medicines and drugs which are

not only ignored but, often dismissed as being primitive and unscientific. Women are also involved in performing various animal husbandry activities, and generally they are not approached by the extension worker. Women are known to use many plants for treatment of animals in West Bengal. Similarly the tribal women of Gujarat had the skill of identifying the weeds, tree leaves, creepers which can be used for feeding livestock. There is a danger of losing such valuable information which needs to be documented. This could be achieved through group discussion, Rapid Rural Appraisals, personal discussions etc. with the farmers.

The number of all these technologies will run into thousands and it will be a herculean task to validate or scientifically verify each one of them. Nevertheless, there is a need to screen the technologies, to cull the nonsens and to utilize the relevant ones, for example:

- *What is the truth that feeding excreta of birds can to induce heat, that mud on wounds can help the healing, and that mulling of testicles or removing them through open methods is a better methods of castration.*

Some of the traditional practices already attracted the attention of the researchers to test and validate their efficacy, e.g.:

The traditional practice of using milk while outplanting tobacco seedlings to reduce the spread of tobacco mosaic virus (TMV) in some parts of Andhra Pradesh was verified and its efficacy confirmed by the researchers through laboratory and field trials (Chari and Nagarajan, 1992). Similarly the use of cow dung to control bacterial leaf-blight, a traditional practice in many parts of lowland and water logged areas of India was found effective

(Gangopadhyay and Das, 1992). Another example of ITK is that many farmers allow part of the feed to be refused, a practice that makes much sense under certain conditions as described under #4.4.

CONCLUSION

Farmers have good reasons not to accept new technologies. In fact, they possess a large amount of information that can solve their own problems without resorting to advice from technical advisers who have little understanding of local conditions. Indigenous knowledge plays a major role in finding location specific solutions for problems based on the land of the farm family, its micro-climate, the access to land, inputs and labour in different times of the year. Much of this knowledge is not based on formal research, but on careful observations and experience from the farm family, the parents, friends and colleagues. Since every technology has positive and negative effects, it is necessary to analyze the available ITK technologies carefully before recommending adoption by the farmers. This is true for both scientific and traditional knowledge. It may be necessary to refine or modify the modern technologies.

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