Indigenous Knowledge of Bihar Farmers

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ABSTRACT

Indigenous Technical Knowledge provides a valuable resource for sustainable development. Most of such knowledges are passed down from generation to generation, usually by word of mouth. India has been nurturing a traditional civilization over a period of 5,000 years. India’s ancient scriptures, teachings of sages as well as innumerable sayings and proverbs contain profound store-house of ideas, concept and practices that are designed to address the process of building harmonious relationship among man, animal and nature. With the dissemination of modern practices the indigenous practices have started to lose their background and have eroded to a large extent. But still many people in rural India use indigenous practices. Under this study an attempt has been made to document indigenous knowledge of the ATMA farmers of Bihar regarding crop production, animal husbandry, and human health care.

Key words: ATMA farmers, Bihar, Indigenous Knowledge, crop production, animal husbandry, human health

INTRODUCTION

Indigenous knowledge is local knowledge that is unique to a given culture or society. It is the base for agriculture, health care, food preparation, education, environment conservation, and a host of other activities. Much of such knowledge is passed down from generation to generation, usually by word of mouth. India has been nurturing a traditional civilization over a period of 5,000 years. India’s ancient scriptures, teachings of sages as well as innumerable sayings and proverbs contain profound store-house of ideas, concept and practices that are designed to address the process of building harmonious relationship among man, animal and nature. The literature is mostly based on indigenous technical knowledge (ITK) experiences that gathered momentum through generations and are being developed and standardized through innumerable experimentation and practices. The enhancement of the quality of life of the Indians who in great majority live in and depend on agricultural production systems would be almost impossible if this rich tradition of ITK is kept inside (Berkes and Folke, 1994).

Problems associated with indigenous people and indigenous knowledge have had far-reaching or serious impacts on development endeavours. A growing body of evidence indicate that one of the main reasons why “conventional” development approaches have failed is that they have tended to ignore the indigenous knowledge systems (Morin-Labatut and Akhtar, 1992; Salas, 1994 and Warren, 1991). This has led many people to argue that in order to ensure a more socially and ecologically sound approach to development, it is necessary to understand, respect, value and utilize the indigenous knowledge systems (Berkes and Folke, 1994; Hecht and Pscy, 1989).

It is extremely difficult to acquire indigenous knowledge which is regarded as secrete or confidential. Moreover, since indigenous knowledge is not documented but stored in peoples’ minds, it bears a high risk of losing it. Maundu (1995) state that indigenous knowledge is diminishing at an alarming rate with the ageing of those in the indigenous population with strong links to the past.

Importance of learning from farmers have been long realised. Honey bee network of Dr AK Gupta and Asian Agri-History Foundation of Prof. YL Nene are
doing very commendable work in this direction. Some works have also been done under NATP on this aspect. Several scholars have highlighted the importance of indigenous knowledge. Chander and Mukherjee (1994), Joshi and Singh (2006), Mishra (2002), Ravi Kumar et al. (2004) and Tiwari and Tiwari (2003). Indigenous people have a wide knowledge of the ecosystem. Indigenous knowledge has been accumulated over centuries and has potential value for sustainable development. It can help other people learn how to live in harmony with nature in a sustainable manner.

The farmers in Bihar state are mostly marginal and small farmers; practicing low input based production system. Agriculture and allied sectors provide opportunities for optimum utilization of the resources available in the system. But irony is that, knowledge, skill and survival strategy of farmers operating with low external input have often been ignored to promote modern agriculture. Indigenous or traditional knowledge has scientific rationale and great deal of relevance for agricultural productivity and sustainability in this region. With this background the present investigation has been carried out to identify and document the indigenous knowledge (IK) practised by the ATMA (Agricultural Technology Management Agency) farmers of Bihar.

**MATERIAL AND METHODS**

The study was carried out to document indigenous knowledge from the farmers representing seven districts namely (Arval, Jahanabad, Purvi-Champaran, Gaya, Navada, Rohtas, and Paschimi-Champaran) of Bihar state in India. Data were collected from these farmers during ATMA training programmes organized by Department of Extension Education, Institute of Agricultural Sciences, at Banaras Hindu University, Varanasi (UP) during March 16 to September 3, 2009. The training was sponsored by Bihar Agricultural Management and Extension Training Institute (BAMETI), Patna (Bihar). The total numbers of the participants were 138 (128 male and 10 females). The information has been collected with the help of interview schedule, interpersonal interaction and focus group discussion.

**RESULTS AND DISCUSSION**

**Documented Indigenous Agricultural Knowledge**

**Crops Management Practices**

i. Wood ash mixed with cow dung ash keep cold away from the crops like potato (*Solanum tuberosum*), brinjal (*Solanum malongena*) and chilies (*Capsicum annuum*), if spread over leaves early in the morning.

ii. Sowing of summer maize as inter crop with sugarcane in the month of February give satisfactory yield for both the crops equally well.

iii. Incorporation of paddy, maize and cucurbits stubbles in the field through harrowing increase significant number of earthworms in the field during rainy season.

iv. Use of green manure of crops like moong (*Vigna mungo*), urd (*Vigna radiata*) and sunhemp (*Crotolaria juncea*). These crops should be incorporated at the age of 30-40 days after sowing with the harrow. It will increase yield of crops significantly.

v. Press mud of sugar factory adds lime and sulphur in the treated field.

vi. Sowing of the soaked seeds of red gram in the sour whey (chhanchh) over night, will keep away wilt disease of pigeon pea (*Cajanus cajan*). And ‘Dal’ made of this treated arhar gives clarified butter taste automatically.

vii. Mixed cropping of turmeric (*Curcuma longa*) (haldi) + potato (*Solanum tuberosum*) + chilies (*Capsicum annuum*), gives good production for all three crops in Bihar.

viii. Spraying of ash mixed with kerosene oil in the morning (except dew condition), it will protect paddy from ‘Phank’ infestation.

ix. A replace of zero tillage was reported by the respondents where, direct broadcast of gram in wet field after soaking overnight and treating with fungicides, and seeds were pressed manually in the wetted soil, here growth of plants were seen horizontally resulting more number of branches per plant which increases the yield of gram that of normal cultivation and lessen the infestations of diseases and insects in the field.
Grain Storage Practices

i. Farmers told that they do bagging of wheat in the plastic bag and tie the bag well, after that they insert this plastic bag in the gunny bag by keeping tied mouth at the bottom of gunny bag and sieve the gunny bag finally. By adopting this practice they protect wheat grains from infestation of grain weevil ‘Gluta’ (Sitophilus granarius) and other storage pests.

ii. They also used ‘Neem’ (Azadirachta indica) leaves while storing wheat grain in order to protect from insect-pests.

iii. Farmers also use plastic bags of chemical fertilizers like Urea and DAP, for storage of grains to protect from moisture as well as for easy handling during transportation from one place to another place.

Crop Watch Practices

i. “Machan” made from wooden poles with the height of ranges 5'-8’ using local grasses and crops residues, paddy straw etc. helps in protecting crops from wild animals like wild cows during night and birds in the daytime.

Prediction of rain: Farmers revealed that in the villages they predict rain through following indigenous wisdom:

i. Wind coming from the south west direction brings heavy rains.

ii. Clouds of dark colour may cause heavy rains for long period.

iii. When ants move with taking eggs in their mouth to the safe places indicates heavy rains.

iv. Sparrow (house bird) taking dust bath indicates rain likely to take place.

Soil Health and Fertility Management Practices: Most of the farmers use farm yard manure and green manure instead of chemical fertilizers which is used by very few farmers. Sunnhemp or dheincha are grown in less fertile lands. It is 30-40 days crop, which is grown before paddy cultivation in July-August or before sowing in the field. These practices are used by farmers to enhance fertility and soil health of less fertile lands especially.

Livestock Management Practices

i. Farmers reported that they use paste of Bael (Aegle marmelos) leaves up to 4-5 days, in order to reduce shoulder pain of working ox.

ii. A healthy cow was unable to conceive even after giving all kinds of treatments. Finally it was used for ploughing up to three months, and then it became thin and came into heat and got conceived too. Now it is giving milk as cow and also used for ploughing as an ox.

iii. Farmers revealed that for curing Foot and Mouth Disease (FMD) they use paste of custard apple (Annona reticulate) or Sarifa leaves and alum mixed water. They apply the paste on the wounded hooves and bandage with clean cloth. Simultaneously they use alum mixed water to wash the mouth of animal.

iv. Cows with triangular shape, small legs, broad hind part, narrow fore part, and soft & shiny skin are considered by farmers as high milk producing cow.

v. Farmers said that they give 150 ml Sesame oil with hukka or ‘Gudgudi’ water to animal suffering from ‘Aphara’ as an indigenous medicine. After taking this animal pass dung soon.

vi. Buring of tortoise shell near animal shed protects animals from Foot and Mouth disease. This was a common belief among the farmers of Bihar.

vii. Farmers used to give 2 numbers of ‘Nenna’ (sponge guard) per day to get cow in heat.

viii. A mixed dose of 200gms of ginger (Zingiber officinale), turmeric (Curcuma longa) and garlic (Allium sativum) each in month of May, keeps foot and mouth disease away.

ix. There is a common believe among the farmers of Bihar that to prevent animals from Khurba (FMD) one should apply a few drop of red ink on tender bamboo leaves on Saturday and give it to animals after chanting the mantra “Aage Arjun Pichhe Bhim, Khurba Mare Champaseen! Chhote Lar Na Phate Khari Dubai Shrikrishna Chandra ki!!”
**Human Health Management Practices**

i. Two garlic cloves are given to a child if suffering from cough and cold.

ii. To cure pneumonia Nutmeg (*Myristica fragrans*) or Jayfal is rubbed with mustard oil and given to affected person @ two teaspoonfuls twice daily up to two to three days.

iii. Farmers used to apply a lukewarm paste of Turmeric, onion, dub grass and mustard oil for pain relief of any kind of external injury.

iv. Farmers have a common practice of planting ‘Pipal’ (*Ficus religiosa*) and ‘Tulsi’ (*Ocimum tenuiflorum*) plant near their residential area as these plants are believed to produce oxygen (O2) 24 hours, which is beneficial for all living organism and make air fresh.

v. Farmers used ‘Asawgandha’ (*Withania somnifera*) to regain energy and vitality in the body. They used ‘Wakuchi’ to cure leprosy disease. ‘Chitrak kadi’ is used as a good appetizer. ‘Sarpagandha’ (*Rauvolfia serpentina*) is used for cure of dysentery and indigestion. ‘Kasturi Bhindi’ (*Abelmoschus esculentus*) is used for curing heart diseases. ‘Bhumisal’ plant is used in cough and asthma. ‘Gultut’ plant is used to cure scorpion bite. ‘Bael’ (*Aegle marmelos*) is used for all types of stomach problems.

**CONCLUSION**

Farmers of Bihar have been practising indigenous knowledge since time immemorial. This collection of knowledge is of great significance in conserving and maintaining sustainability of the environment. Further it requires integration with modern scientific knowledge to generate a wide range of new ideas and practices for the betterment of mankind.

**REFERENCES**


