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Knowledge and adoption level of livestock owners about management practices under organic animal husbandry system in arid zone of Rajasthan

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Abstract

The present paper highlighted knowledge and adoption level of livestock owners about organic animal husbandry management practices in arid region of Rajasthan. The study was conducted in purposively selected Barmer and Bikaner district of Rajasthan. A total of 120 livestock owners were selected from 8 selected villages of 4 tehsils namely Sheo, Chohtan, Lunkaransar and Kolayat. The findings of the study show that livestock owners had highest knowledge and ranked first were found collectively in animal access to free movements, provision of sufficient fresh air and natural daylight, protection against adverse climatic condition, provision of resting/lying area, advantages of weaning, milking at separate place and washing the hand/utensils before milking (mean score 1.00 for each). While the highest adoption were found to access to free movements of animals, provision of sufficient fresh air and natural daylight, protection against adverse climatic condition, provision of bedding material and provision for sufficient resting area with adoption index 100 and ranked first jointly.

Keywords: Adoption, arid region, knowledge, management practices, organic animal husbandry

Introduction

Healthy and safe food is basic for supporting a growing population and achieving minimum health standards. An adequate quantity of balanced and nutritious food is a primary indicator of quality of life, human welfare and development. Quality foods derived from animal sources have major importance for growth and well being of population. Production of quality food is a serious challenge to consumers, farmers, processors, retailers and governments alike due to a shift in food consumption pattern and intensified food production techniques. Good agricultural practices like integrated pest management, organic farming etc should be used in a pragmatic and sustainable mode to produce healthy food^[15].

Organic agriculture is one of the most dynamic and rapidly-growing sectors of the global food industry^[2]. During the last decade the demand for organic products has risen sharply across the world revealing public concern about food safety and quality, environmental effects of intensive agriculture and animal welfare^[3, 13]. Organic systems of livestock production have developed to meet the concerns of society for good health and welfare required by farm animals that yield milk and meat as well as the need for safer and healthier products^[6, 13].

Livestock plays an important role in relation to the general principles of organic agriculture, supporting biological cycles within the farming system and diversifying production^[3]. Organic and conventional management practices of livestock are expected to differ due to specific regulations that are in place for organic farming^[12]. In organic farming, animal husbandry is often understood in terms of natural living^[8]. That includes the possibility for the animal to perform natural behaviour, getting feed adapted to its physiology and living in an environment similar to that to which the animal is evolutionarily adapted. One of the main and basic principles of organic farming is that animals are kept as part of the whole production system and their nutrition should be based on locally grown organic feedstuffs^[9].

Knowledge about organic animal husbandry practices plays a very important role in the adoption of organic animal husbandry practices. Knowledge is a component of the behaviour of an individual. To improve the adoption of organic animal husbandry practices under village conditions it is necessary to assess the knowledge of the livestock owners. Keeping these facts in view, the present investigation was carried out with the objectives of knowledge and

adoption level of livestock owners in different sub areas of management practices of organic animal husbandry.

Materials and Methods

The study was conducted in two purposively selected districts of Rajasthan i.e. Barmer and Bikaner. From each selected district, two tehsils were selected purposively. Sheo and Chohtan tehsils from Barmer district and Kolayat and Lunkaransar tehsils from Bikaner district were selected on the basis of highest livestock population. Two villages were selected randomly from each tehsil. Thus, total eight villages were selected for the purpose of study. From each selected village, 15 respondents were selected randomly. Thus, total 120 livestock owners were selected for present investigation. Data were collected from livestock owners with the help of semi-structured interview schedule, researcher's own observations were also recorded regarding the practices followed by livestock owners.

Knowledge level of livestock owners

Knowledge for this study has been operationalized as, the extent of known information by the non organic livestock owners with regarding organic animal management standards formulated by Government of India [10]. The knowledge of livestock owners was measured by developing 'tailor-made' test, based on the organic animal husbandry standards, covering different aspects of organic animal management practices. The knowledge was measured on three-point continuum scale i.e. correct, partially correct and incorrect answer. The weightage of 2, 1, and 0 was allotted to each correct, partially correct and incorrect answer, respectively. The knowledge mean score of one respondent in a sub area/area was calculated by

$$\text{Knowledge mean score} = \frac{\text{Total obtained score}}{\text{Total obtainable score}}$$

Adoption level of livestock owners

For the present study, the term adoption was operationalized as the new organic animal husbandry practices recommended through research for the benefit of livestock owners and whether the livestock owners are using these technologies

over a period of time at the farm or not. For the measurement of adoption of scientific management practices and technologies by respondents a questionnaire schedule was developed.

The respondents were asked to give their response about adoption of organic animal management practices. The scores for sub areas were then calculated by summing up the item-wise scores obtained in sub areas. The overall adoption score for each respondent was then calculated by adding up all the scores obtained under each sub areas.

$$\text{Adoption index} = \frac{\text{Total obtained score}}{\text{Total obtainable score}} \times 100$$

Results and Discussion

Knowledge level of livestock owners in different sub areas of management practices of OAH:

In different sub-areas of management practices, the results indicated that access to free movements of animals, provision of sufficient fresh air and natural daylight, protection against adverse climatic condition, provision of resting/lying area, advantages of weaning, milking at separate place and washing the hand/utensils before milking were ranked first collectively (mean score 1.00 for each) followed by mutilations in animals (0.90), herding of animals (0.82), advantages of clean milk production (0.81), reasons for milking at separate place (0.78), and reasons for washing the hand and utensils before milking (0.71) ranked third, fourth, fifth and six respectively. The lowest knowledge was found about various records keeping in animal husbandry (0.58).

According to the standards of organic livestock production, keeping of farm records is one essential requirement. Though the memory of Indian livestock owners in respect of inputs used and outputs obtained is quite amazing but they significantly failed to keep written records and none of them use to keep any farm records. The farming practices, particularly the livestock farming is not yet looked as an industry by Indian farmer, so they do not find any use of keeping records. Moreover, low level of literacy could be another factor for not maintaining the written production records.

Table 1: Knowledge level of livestock owners in different sub areas of management practices of OAH:

S.N.	Sub areas of management practices	Mean score	Rank order
1	Access to free movements of animals	1.00	I
2	Provision of sufficient fresh air and natural daylight	1.00	I
3	Protection against adverse climatic condition	1.00	I
4	Provision of resting/lying area	1.00	I
5	Herding of animals	0.82	III
6	Advantages of weaning	1.00	I
7	Mutilations in animals	0.90	II
8	Milking at separate place	1.00	I
9	Reasons for milking at separate place	0.78	V
10	Washing the hand and utensils before milking	1.00	I
11	Reasons for washing the hand and utensils before milking	0.71	VI
12	Record keeping	0.58	VII
	Advantages of clean milk production	0.81	IV

Since record keeping is essential for daily farm management and for financial management of the dairy enterprise; verification of organic status of animals, production, harvesting, and handling practices associated with the organic

products and animals and is a requirement by the organic standards to demonstrate compliance with the organic standards.

Adoption index for different subarea of management practices

The data presented in table 2 revealed that highest adoption were found to access to free movements of animals, provision of sufficient fresh air and natural daylight, protection against adverse climatic condition, provision of bedding material and provision for sufficient resting area with adoption index 100 and ranked first jointly. However, weaning of animals and do not use of anesthetics for mutilation practices with adoption index 99.16 and stands rank second collectively. While beating of animals during work, keeping the male and female animals in same shed, keeping of diff species and age group

animals in same shed and type of disinfectant used with adoption index of 98.3, 96.6, 86.6 and 83.3 and stands ranked third, fourth, fifth and six respectively. Lowest adoption was found in cutting of naval cord, cleaning of new born and mutilation practices followed by livestock owners with adoption index 16.6, 14.16 and 0.71 respectively.

Sixty four percent of the farmers had no housing for any type of livestock but kept the animals under tree shades. Only 36% of the farmers had their animals provided with roofed shelters popularly known as zero grazing units mostly made for dairy cattle^[11].

Table 2: Adoption Index for different sub areas of management practices of OAH

S.N.	Sub areas of management practices	Adoption Index	Rank order
1	Access to free movements of animals	100	I
2	Provision of sufficient fresh air and natural daylight	100	I
3	Type of animal shed	48.7	VIII
4	Protection against adverse climatic condition	100	I
5	Protection against high temperature	29.64	X
6	Protection against severe cold	29.16	XI
7	Provision of bedding material	100	I
8	Type of bedding material used	33.8	IX
9	Provision for sufficient resting area	100	I
10	Keeping of diff species and age group animals in same shed	86.6	V
11	Keeping the male and female animals in same shed	96.6	IV
12	Cleaning of new born	14.16	XIII
13	Cutting of naval cord	16.6	XII
14	Weaning of animals	99.16	II
15	Mutilation practices followed by livestock owners	0.71	IVX
16	Do not use of anesthetics for mutilation practices	99.16	II
17	Beating of animals during work	98.3	III
18	Use of sick animals for work	77.5	VII
	Type of disinfectant used	83.3	VI

In study area among livestock owners was found to be adequate feeding to animals by tethering and free-range system. This is consistent with results of earlier studies among other smallholder farmers in Uganda^[1, 7]. These management systems provide animals with sufficient outdoor access as required by the organic livestock standards^[4]. Although tethering and free-range systems provide outdoor access, a requirement in the organic standards and desirable practices in organic animal husbandry. The study on integrating indigeneous knowledge of farmers for sustainable organic farming: An assessment in Uttarakhand state of India and revealed that farmers were providing grazing to animals along with forage and pasture which varies with the season^[14].

Conclusion

The livestock owners provided their animals with ample access to free movements, provided protection against extreme weather condition, grazing was provided to all animals for a considerable time, mixed farming system was adopted by farmers, most of the livestock owners was using own farm produce as feeding source for their livestock. Thus, on basis of above findings, study concluded that most of the livestock owners were following organic livestock feeding practices without much knowing the advantages of organic production system. All these practices conferred a high standard of animal welfare, most sought criteria for organic farms. The proper extension strategy like training, goshi, exhibition, farm visits and kisan mela may be found more important in updating the knowledge level of organic cultivators under organic farming system. Converting to

organic production may be far easier for Indian livestock owners. The low external inputs based Indian diary sector has better opportunities to convert to organic production since majority of Indian livestock owners are organic livestock owners not by choice but by tradition. The government policy support, incentives, creating awareness, training, development of strong markets for exports may turn to quality of organic production.

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