Zero Input Tendencies against Nutritional Security to Livestock in Bangladesh Border of Assam

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ABSTRACT

Technological improvement in livestock sector has been shying away from the farmers in many parts of the country including the Bangladesh border of Assam due to some inherent difficulties. International border areas are virtually vulnerable to many issues including technologies and innovations. Therefore, a study was conducted in three villages namely Kamarpara, Kukurmara and Mankachar of international border in Dhubri District of Assam to understand the extent of technologies and innovations adopted in livestock rearing. Thirty six each farmers having at least one pair of cattle or buffalo were selected randomly from the villages making a sample size 108. The study revealed that statistically 48.15 per cent of the respondents had low level of adoption in breeding practices. Both in management/health care and feeding practices about 90.00 per cent respondents fell in the medium to high category of distribution. The activities done mostly by the farmers were "indiscriminate natural service", "selective natural service", "record of heat cycle", "pregnancy diagnosis" and "identification of animal in heat". It was found that regularly to importantly attended activities in feeding practices were "special feeding during ill health" (72.22%), "colostrum feeding to the calves" (18.52%), "special diet while in lactating period" (34.26%), "special diets to pregnant animal" (50.00%) and "concentrate feeding during ill health" (8.33%). In case of management practices the respondents placed their opinion to mostly degree in "first aid treatment during emergency" (91.67%), "expenditure on health care/management (monthly) lesser than Rs. 500/-" (85.19%), "self-management of sick animal" (51.86%), "castration of male animal" (44.44%) and "deworming" (25.00%).

Key words: *Zero input; Nutritional Security; Technology; Farmer; Livestock;*

The socio-economically backward, populated by mixed races and affected by porosity; the Bangladesh border of Assam is vulnerable to many developmental activities including animal husbandry. Under such conditions, animal husbandry is one of the pivotal areas which is an essential for their community life, livelihood and lifestyle. Generally agriculture based society as they are; animal husbandry cannot be separated from their co-existence. Further, improvement of technologies in livestock sector has not gone to the farmers in many parts of the country including the Bangladesh border of Assam due to some inherent difficulties. For their improvement in general and also the safety and security of the people dependent on them; technological back up is essential. In an attempt to see how alert the livestock farmers are and where they place the maximum emphasis especially in cattle and buffalo management, a study was felt important as many aspects of their life and livelihood would be affected by improvement in this sector in the years to come. Further, there are scopes for improvement in the sector. Therefore a study was conducted to understand the status of technologies used by the farmers in terms of breeding, feeding, management and health care for improvement of their livestock and on issues they put maximum emphasis in keeping livestock healthy and hardy.

METHODOLOGY

The study was conducted in three villages adjacent to Indo-Bangladesh International Border of Dhubri district of Assam to understand the status of technologies used by the farmers in terms of breeding,

feeding, management and health care for improvement of their livestock in otherwise shying away conditions in such areas. The three selected villages were Kamarpara, Kukurmara and Mankachar. A list of all the farmers having at least one pair of cattle or buffalo heads in those selected areas was prepared separately. Finally, thirty six farmers from each of the lists were selected randomly making the total sample size 108. An objective-wise structured, pre tested, reliable and valid interview schedule was prepared before the actual data collection. The respondents were asked to respond against each question, which he or she felt relevant in either of the three degrees ranging from "mostly", "sometimes" to "occasionally". The data were collected personally from the respondents by approaching the respondents at their residence/farms at suitable hours when they were freeand allowed in advance to do so.Data such collected were arranged, tabulated and analyzed as per the established statistical procedures keeping the objectives of the study in mind. Based on the results the conclusions were drawn against the set objectives.

RESULTS AND DISCUSSION

From Table 1 it could be seen that although a good number (48.15%) of the respondents had low level of adoption in breeding practices followed by medium level of adoption (36.11%), the adoption of improved practices could not be considered as low among the livestock farmers. Because, the mean value was found to be 8.83 out of the total maximum obtainable score of 12, which by any standard could be considered as quite high and satisfactory. Going by that it could be said that, though the animals were almost reared in zero to extremely low input conditions, there was a tendency of the respondent to remain adhered to the good breeding practices. Similar findings were also reported by *Rahman, Barthakur and Kalita (2008).*

The attempt to investigate further gave a detail idea about the state of affairs prevailed in the area under investigation as presented in Table 2. Although the livestock were reared quite traditionally, there were few areas where their attention was paid by the farmers. The activities which were done in mostly level by the farmers were "indiscriminate natural service" (41.67%), "selective natural service" (53.70%), "record of heat cycle" (25.93%), "pregnancy diagnosis" (12.04%) and "identification of animal in heat" (31.19%). One would

Table 1: Frequency distribution of the respondents on the basis of their adoption practices in breeding, feeding and management and health care

Traits	Mean	SD	Range	Low	Medium	High
Breeding	8.83	1.78	3-12	52	39	17
				(48.15)	(36.11)	(15.74)
				≤7	8-9	10
Feeding	6.00	3.49	1-18	11	74	23
				(10.19)	(68.52)	(21.29)
				≤2	3-8	≥9
Management/ Health care	15.04	1.98	6-19	11	74	23
				(10.19)	(68.51)	(21.30)
				≤13	14-16	≥17

(Figures in the parenthesis indicate percentage)

Table 2: Distribution of the respondent on different practices in breeding

Areas	Regularly	Mostly	Occasionally
Indiscriminate natural service	1 (0.93)	45 (41.67)	62 (57.41)
Selective natural service	10 (9.26)	58 (53.70)	40 (37.04)
Artificial insemination	0 (0.00)	0 (0.00)	50 (46.30)
Record of heat cycle	0 (0.00)	28 (25.93)	65 (60.19)
Pregnancy diagnosis	5 (4.63)	13 (12.04)	65 (60.19)
Identification of animal in heat	7 (6.49)	38 (31.19)	33 (30.56)
Repeating A.I.	0 (0.00)	0 (0.00)	21 (19.44)

(Figures in the parenthesis indicate percentage)

have definitely preferred the farmers to adopt the artificial insemination extensively for improvement of their livestock. But the fact remained that there were some other associated factors getting considered which might have been closely related to their lifestyle and agricultural activities. The findings received support of the earlier studies by *Bhasin (2014)* and *Singh (2013)* and improved livestock essentially meant intensive care, labour engagement and proper marketing. In absence of all of them in place, it was rather pre-mature to think of any artificial insemination. Further, even if some might have tried and came out with unsatisfactory results as the electricity supply to the area even at the time of data collection was in turbulence and quite erratic leading to breakage of the cold chain. Such a condition was never helpful for innovation of artificial insemination. That must have been the reason for which A.I. did not find popularity among the farmers of that area. Similar findings were also reported by *Dekaet al. (2007).*

The other areas as mentioned earlier like "selective natural service", "record of heat cycle", "pregnancy diagnosis" and "identification of animal in heat" definitely revealed the kind of urgency the farmers possessed in their mind for the sake of their livestock in case of breeding. Similar findings were also reported by *Ahlawat and Singh (2005), Dekaet al. (2007)* and *Raoet al. (2014).* As seen from the frequency table on feeding, it was clear that as high as about 90.00 per cent of the respondents' occupied medium to high category of distribution on feeding. This obviously indicated that the livestock farmers were well aware of the importance of feeding. It was found that the respondents used to rear their livestock on zero input bases. It meant that the animals were reared on scavenging basis with or without any supplement. At the best they were supplied with the kitchen waste or the agriculture produce management process's byproducts, which were available in abundance. This could be also justified from the fact that in the same table out of the total obtainable score of 18, the mean value found was only 6 and the standard deviation of 3.49. This obviously spoke high about a contrast situation where people understood the importance of feeding as one of the major important areas of livestock rearing and at the same time they also did not go for the same because of availability of agricultural by products on one hand and enough of natural vegetation's as feed for livestock on the other hand. Similar findings were also reported by *Borah (2012)* and *Pandianet al. (2013)* when he carried out his study on livestock rearing in fringe villages of forests in Assam.

Even after obtaining an overall picture of the feeding practices adopted by the farmers in the investigated areas, it was felt necessary to go little deep and see what areas were mostly regarded as important by the livestock farmers. The results were presented in Table 3. It was found that regularly to importantly attended activities in feeding practices were "special feeding during ill health" (72.22%), "colostrum feeding to the calves" (18.52%), "special diet while in lactating period" (34.26%), "special diets to pregnant animal" (50.00%) and "concentrate feeding during ill health" (8.33%). So, from the finding it could be very simply derived that the livestock farmers took care of their animals with respect to feeding only when there was some extra stress condition or physiological demand of the animal for feeding, that they supplied feeds to their

Table 3: Distribution of the respondent on different practices of feeding

Areas	Regularly	Mostly	Occasionally
Concentrate feeding during ill health	9 (8.33)	0 (0.00)	4 (3.70)
Special feeding during ill health	22 (20.37)	56 (51.85)	1 (0.93)
Special diets to pregnant animal	10 (9.26)	44 (40.74)	3 (2.78)
Special diet while in lactating period	14 (12.96)	23 (21.30)	1 (0.93)
Colostrums feeding to the calves	20 (18.52)	0 (0.00)	2 (1.85)
Concentrate + Premix feed	1 (0.93)	1 (0.93)	10 (9.26)
Providing kitchen waste regularly	0 (0.00)	1 (0.93)	5 (4.63)
Feeding twice a day to all animals with concentrate	1 (0.93)	3 (2.78)	8 (7.41)
Feeding twice a day with concentrate	0 (0.00)	2 (1.85)	8 (7.41)
Providing mineral mixture	1 (0.93)	37 (34.26)	22 (20.37)
Any other (Cattle feed)	0 (0.00)	0 (0.00)	4 (3.70)

(Figures in the parenthesis indicate percentage)

livestock. This was certainly not an encouraging note and in a way was an indication of ignoring their livestock assets. So a huge gap could be seen here where the extension network in collaboration with other rural development/welfare departments to be taken up. The findings were in concordance with the works of *Hangaraet al. (2011), Haque and Toppo (2016)* and *Park et al. (2015).*

About 90.00 per cent of the respondents falling in the medium to high category of management/health care practices were considered as a healthy signal. Further, out of the total obtainable score 19, as high as 15.04 was the mean value. But that standard of management, they were adopting for the nonproductive, local and genetically poor livestock, which never fetched them the kind of return they might have expected. This might

Table 4: Distribution of respondents on different areas of management/health care

Statement	Mostly	Sometimes	Occasionally
Castration of male animal	48 (44.44)	14 (12.97)	32 (29.63)
Deworming	27 (25.00)	40 (37.04)	38 (35.19)
Vaccination	9 (8.33)	40 (37.04)	38 (35.19)
First aid treatment	99 (91.67)	2 (1.86)	6 (5.56)
Isolation of sick animal	25 (23.15)	46 (42.60)	33 (30.56)
Self-management of sick animal	56 (51.86)	13 (12.04)	33 (30.56)
Expenditure on health care(monthly)			
$\leq$Rs.500/	92 (85.19)	11 (10.19)	0 (0.00)
$\leq$1000/	1 (0.93)	87 (80.56)	8 (7.41)
$\geq$1000	0 (0.00)	0 (0.00)	95 (87.96)

(Figures in the parenthesis indicate percentage)

have been because of the fact that animal husbandry in the area of the study was an integral part of their agricultural system, which in turn was their livelihood. Similar results were also obtained by *Das (2005), Devettere (2009)* and *Hoglindet al. (2013).*

This finding obviously prompted to investigate the roots of the expression. It could be seen from the Table 4 that the important areas where the respondents placed their opinion to mostly degree were "first aid treatment during emergency" (91.67%), "expenditure on health care/management (monthly) lesser than Rs. 500/-" (85.19%), "self-management of sick animal" (51.86%), "castration of male animal" (44.44%) and "deworming"(25.00%). Looking in a greater canvas, all these findings could not be considered as exceptional, rather these were necessities. Such care being taken by farmers were also reported by *Rahman, Barthakur and Kalita (2008)* and *Singh et al (2015).*

CONCLUSION

In case of technology transfer in international border areas in Assam, there has been in a lag therefore, an evaluative study to understand the extent of the situation and possibility of introduction of the same in mind was carried out. The study revealed that 48.15 per cent of the respondents had low level of adoption (48.15%) in breeding practices followed by medium level of adoption (36.11%) and high level (15.74%). The overall adoption of improved practices could not be considered as low among the livestock farmers due to scoring of mean value of about 9 out of the total obtainable score of 12. About 90.00 per cent of the respondents falling in the medium to high category of management/health care practices grossly looked healthy. Again, as high as about 90.00 per cent of the respondents occupied medium to high category of distribution on feeding. The activities which were done in mostly level by the farmers as found in the investigation were "indiscriminate natural service", "selective natural service", "record of heat cycle", "pregnancy diagnosis" and "identification of animal in heat". One would have definitely prefer the farmers to adopt the artificial insemination for improvement of their livestock. It was found that regularly and importantly attended activities in feeding practices were "special feeding during ill health", "colostrum feeding to the calves", "special diet while in lactating period", "special diets to pregnant animal" and "concentrate feeding during ill health". The important areas where the respondents placed their opinion to mostly degree in management and health care were "first aid treatment during emergency" (91.67%), "expenditure on health care/management (monthly) lesser than Rs. 500/-" (85.19%), "self-management of sick animal" (51.86%), "castration of male animal" (44.44%) and "deworming" (25.00%). These findings indicated that the livestock farmers were gradually picking up the technological developments in this sector and with some more initiatives, they might look promising in the days to come.

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