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Existing and Changing Pattern of Bovine Rearing by Dairy Farmers in South-Bihar Alluvial Plain Zone

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ABSTRACT: *Based on soil characterization, rainfall, temperature and terrain, three main agro-climatic zones in Bihar have been identified. For the study of the pattern of bovine rearing a study was conducted in South –Bihar Alluvial Plain Zone. Farmer's preference for the dairy animals depends upon lot of factors, and existing pattern of animal rearing truly depict the bovine preference. In the study area ten different pattern of bovine combination were found to be followed among the dairy farmers. 35.63 percent of them were rearing buffalo for more than 5 years; nearly twenty one percent of them were rearing both buffalo and cow for more than 5 years and farmers rearing cow for more than 5 years were found to be 15.63%. Buffalo was found to be more preferable in the area than cow in the last 1st year, 3rd year, and 5th year and beyond the 5 years of bovine rearing. Changing pattern of buffalo indicated change of (-) 6.25 % in compared to 3rd year, (-) 5.62 in compared to 5th year and 0.62% for more than 5 years. Change percentage for buffalo for the period of (prior to 2008 to 2008) was observed to be 12.82 percent, for the period of (prior to 2008-2010) this was observed to be 14.10 percent and for the period of (prior to 2008-2013), this change in percentage was found to be 1.28. Similarly, change percentage for cow for the period of (prior to 2008 to 2008) was observed to be -21.27 percent, for the period of (prior to 2008-2010) this was observed to be 23.40 percent and for the period of (prior to 2008-2013), this change in percentage was found to be -10.63. And compared to rearing the combination of cow and buffalo, change percentage for the period of (prior to 2008 to 2008) and for the period of (prior to 2008-2010) no change was observed and for the period of (prior to 2008-2013), this change in percentage was found to be 11.42 percent.*

INTRODUCTION

In India, dairy sector plays an important role in daily life of farmers who are the major stakeholders of the agricultural economy. For most of them it is a part of their livelihood and actually a way of living. However, with the recent growth of bovine population, now there has been a shift in the outlook towards dairy enterprise. The dairy production scenario in India is witnessing a dynamic change for the last few decades. The indigenous cow population has been declining and being replaced by cross-bred cows. The buffalo population has been steadily increasing. These changes in population trends are attributed to the increasing production of milk. The share of milk of cross-bred cow in Bihar has gone through a major change. During 2000-2002, there was a negative growth in this aspect. However, since 2003-2004, there has been a shift change in the contribution of the milk of cross-bred cows. This has gone up to the level of 1382 thousand tonnes, which is 21.20 percent of the total milk production in Bihar So, there has been a change in the production of milk which has contributed to the agriculture based state economy. In this whole scenario of change in contribution of milk from bovine, we need to find out the reasons for the same. Dairy farmers who bear the flagship of the mammoth total of milk production, their preference must be counted. Bovine preference can be referred to as the greater liking for one dairy animal over another or other dairy animal. Farmer's preference for the dairy animals depends upon lot of factors, and existing pattern of animal rearing truly depict the bovine preference. Existing pattern of bovine rearing refers to the rearing of dairy animals at the time of observation. Changing pattern refers of bovine rearing refers to the change in the rearing of dairy animals over the years found at the time of observation.

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MATERIALS AND METHODS

Based on soil characterization, rainfall, temperature and terrain, three main agro-climatic zones in Bihar have been identified. These are: Zone-I, North-West Alluvial Plain, Zone-II, North-East Alluvial Plain, and Zone-III, South Bihar Alluvial Plain. South Bihar Alluvial Plain Zone has the highest number of desi cattle, highest number of buffalo and rank 2nd in cross bred cattle and thus the highest number of total cattle among the three agro-climatic zones in Bihar. Based on maximum number of total bovines in the agro-climatic zone, this zone was selected for the study. For the study, from this zone two districts were selected and from each district, two blocks and from each block two villages were selected randomly. From each village, twenty respondents were selected randomly, which constitute the total sample size of 160 respondents. Data were collected in the field condition with the help of well structured and pre tested interview schedule.

RESULT AND DISCUSSION

Table 1
Existing pattern of bovine rearing and distribution of farmers

Sr. No.	*Bovine Combination 1st Y +3rd Y+5th Y+(>5) th Y (Y= year)*	*Frequency*	*Percentage (%)*
1	B + B + B + B	57	35.63
2	B + B + B + C	14	8.75
3	B + B + C + C	5	3.13
4	B + C + C + C	3	1.88
5	C + C + C + C	25	15.63
6	C + C + C + B	4	2.50
7	C + C + B + B	4	2.50
8	C + B + B + B	9	5.63
9	CB + CB + CB + CB	35	21.88
10	CB + B + B + B	4	2.50

Where, B =Buffalo; C =Cow; CB = Cow + Buffalo.

It was reported from the study that 35.63 per cent of farmers were rearing for buffalo since more than 5 years, followed by the combination of both cow and buffalo by 21.88 per cent and farmers rearing only cow accounted for 15.63 per cent. This showed their stronger preference for buffalo. The reason may be due to less care required for buffalo, although they require more water. Another factor may be included that cows need to have proper housing system. Another striking preference for rearing the combination of both cow and buffalo indicated the marketing related thinking by the farmers so that they can have milk throughout the year, and less disease susceptible condition as well as to catch the choice and preference of different consumers for either cow milk, or buffalo milk.

Table 2
Pattern of change of existing bovine rearing by the farmers

Sr. No	*Bovine*	*>5 years (Before 2008)*	*Percentage*	*5th year (2008)*	*Percentage*	*3rd Year (2010)*	*Percentage*	*1st year (2013)*	*Percentage*
1.	**Buffalo**	78	48.75	88	55	89	55.62	79	49.37
2.	**Cow**	47	29.38	37	23.12	36	22.12	42	26.25
3.	**Cow + Buffalo**	35	21.87	35	21.88	35	21.88	39	24.39

From the study it was reported that before the year 2008, 48.75 per cent of the farmers were rearing buffalo, 55 percent in 2008, 55.62 per cent in 2010, and 49.37 per cent of farmers in 2013. Similarly before year 2008, 29.38 per cent of the respondents were having cow, 23.12 per cent in 2008, and 22.12 per cent in 2010, and 26.39 per cent of farmers in 2013. It was also reported that before year 2008, 21.87 percent of the farmers were having cow and buffalo, 21.88 per cent in 2008, and 21.88 per cent in 2010, and 24.39 per cent of respondents in 2013. This trend shows that buffalo remained to be the more preferred bovine than other in the study area, and number of farmers preferring cow was observed to be decreasing except for last year

Table 3
Pattern of change of bovine rearing between different years in the study area

Sl. No.	*Bovine*	*Change between (>5 years) and (5 years) i.e.(>2008-2008) (in percentage)*	*Change between (> 5th) and 3rd yeari.e. (>2008-2010) (in percentage)*	*Change between (> 5th) and 1st yeari.e. (>2008-2013) (in percentage)*
1	Buffalo	12.82	14.10	1.28
2	Cow	–21.27	–23.40	–10.63
3	Cow + Buffalo	0	0	11.42

i.e. 2013. On the other side, respondents opting for rearing animal i.e. cow and buffalo, was observed to be increasing, though slowly.

It was also reported that change percentage for buffalo for the period of (> 2008 to 2008) i.e. years beyond 2008 to the year of 2008 was observed to be 12.82 per cent, for the period of (> 2008-2010) i.e. years beyond 2008 to the year of 2010, this was observed to be 14.10 per cent and for the period of (> 2008-2013) i.e. years beyond 2008 to the year of 2013, this change in percentage was found to be 1.28 percent. Similarly, change percentage for cow for the period of (> 2008 to 2008) i.e. years beyond 2008 to the year of 2008 was observed to be -21.27 per cent, for the period of (> 2008-2010) i.e. years beyond 2008 to the year of 2010, this was observed to be 23.40 percent and for the period of (>2008-2013) i.e. years beyond 2008 to the year of 2013, this change in percentage was found to be -10.63 percent. Compared to rearing the combination of cow and buffalo, change percentage for the period of (> 2008 to 2008) i.e. years beyond 2008 to the year of 2008 and for the period of (> 2008-2010) i.e. years beyond 2008 to the year of 2010, this was observed to be 0.00 per cent and for the period of (> 2008-2013), i.e. years beyond 2008 to the year of 2013, this change in percentage was found to be 11.42 percent. It can also concluded that change in percentage of buffalo and cow has contributed to more respondents rearing the combination of cow and buffalo, although, less when compared to buffalo and cow separately. This result show a significant result as it indicates more inclination or preference toward rearing of buffalo. The combination of rearing of both cow and buffalo also show an increasing trend. The cause may be attributed to the marketing clause, as simply either cow keeping cow or buffalo is less profitable than keeping both buffalo and cow.

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