

A study on field crossbreed animals' sale pattern

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Abstract

Data on 4581 Holstein Friesian or Jersey x Local crossbreed animals sold during January 2010 to June 2021 by 2072 farmers spread over 173 villages distributed among 23 Cattle Development Centre's (CDC) in Ahmednagar and Pune districts of Western Maharashtra was compiled for studying animal sale pattern. The average sale price realized for field crossbreed animals by the farmers was noticed to be Rs.25570.78±243.99. The reasons for animal sale as attributed by the animal owners were better price, fodder shortage, household needs, surplus animals, animal trading business as livelihood, unsatisfactory production, old age, and problem breeders, etc. The study revealed that CDC category, animal sire, animal sold season, animal lactation stage, animal class, age of the sold animal, type of buyer, and reason for animal sale had significantly affected the animal sale price, while the site of sale and animal sold through (trading system) found non-significant from an animal sale point of view.

Key Words: Crossbreed animals, animal sale pattern, field areas, and reasons for animal sale.

Date of Submission: 25-08-2021

Date of Acceptance: 09-09-2021

I. Introduction:

Where the facilities of irrigation for growing green fodder, marketing grid for milk and animals, well-established network of co-operatives and health care as well as breeding facilities exist at the village level, the crossbreed animals (Holstein Friesian or Jersey exotic breed x Local animals) are performing well. Farmers experiencing profits from the rearing of crossbreed animals are also progressively getting interested in sale/purchase transactions of these animals. Published reports on field crossbreed animals' sale patterns and different features associated with that sale/purchase are very much scanty excluding sporadic reports. An attempt, therefore, was made to generate and compile data on different facets of sale patterns of crossbreed animals performing under rural conditions and also to understand the trend and examine its utility for planning a dairy cattle improvement program.

II. Materials And Methods:

The information on 4581 crossbreed animals sold from January 2010 to June 2021 reared by 2072 farmers spread over 173 villages distributed among 23 cattle development centers in Ahmednagar and Pune districts of Western Maharashtra were collected and analyzed for the present investigation. The different features of animal sales like category of cattle development center (CDC) (under Field Progeny Testing (FPT) or non FPT), Animal sire (HF100, 50, 62.5, 75%, Private, not available), animal sold season (Summer -March to June, Rainy -July to October, Winter -November to February), animal lactation stage (4 months pregnant, 5 months pregnant, 6 months pregnant, 7 months pregnant, 8 months pregnant, 9 months pregnant, in milk & 4 months pregnant, in milk & 5 months pregnant, in milk & 6 months pregnant, in milk & empty, dry & empty, heifers), animal class (cow, heifer), age of sold animal (up to 1 year, 1.1 to 2, 2.1 to 4, 4.1 to 6, 6.1 to 8, 8.1 to 10 years, above 10 years), site of sale (at farmer door, in animal market), type of buyer (farmer, merchant, middleman), animal sold through (Farmer himself, middleman) and reasons for animal sale (better price, problem breeder, trading business, fodder shortage, household needs, old age, surplus animal, unsatisfied production, non-respondents) were considered. The data was analyzed using a suitable statistical model suggested by Snedecor and Cochran (1967) and using R software (4.03 version).

III. Results And Discussion:

In the present investigation, it was noticed that the farmers had realized an average price of Rs. 25570.78±243.99 by selling their animals. Gokhale and Bhagat (2011) reported an average price of Rs. 19583.72±151.19 for such crossbreed animals. It was further observed that during the last 10 years farmers had realized 30.57 per cent more price by selling their crossbreed animals. The sale of crossbreed animals according to different features is detailed in Table-1. The different features associated with crossbreed animals' sale pattern was

discussed as below;

CDC category: It was noticed that the demand for purchase of animals from CDC's where the Field Progeny Testing (FPT) program was implemented found significantly higher (98.10%) realizing a higher average price per animal (Rs.25644.99±3.69) than those from non-FPT CDC's (Rs.21740.22±125.30). These observations were corroborated with the findings of Gokhale and Bhagat (2011). The higher preference and price to the animals from FPT CDC areas was found to be attributed to reliable reproduction and production records available with the farmers to the buyers as proof.

Animal sire: The information on their respective sires was available for 19.84 per cent of sold animals. The sire had a significant effect on animals' sale prices. The animals born from HF75 per cent sires were noticed to be sold highest (14.87%), however price realized by the farmers was highest for the animals born out of HF100 per cent sires (Rs.31896.87±2359.99), this might be because buyers ready to pay more for animal's having preferred body color, body size, and satisfactory production performance, etc. The least price of Rs.24632.12±1865.79 had realized for those animals born out of HF50 per cent sires and animals sold percentage was 1.44.

Animal sold season: The sale price of animals was found to be different in different seasons. The animals sold in the summer season earned significantly more price (Rs.26283.11±460.76) than those animals sold during winter (Rs.24855.08±426.42) and the rainy season (Rs.25608.75±388.42) respectively, although the percentage of animals sold in the rainy season was highest (38.49); realization of more prices in summer season could be due to higher price expectation of farmers for milk in lean period. The results recorded here did not correspond with the observations of Gokhale and Bhagat (2011) as they noticed the higher price for animals sold in the winter season.

Animal lactation stage: The production status of the animals was noticed to be given more preference by the buyers, hence the lactation stage of the animal at the time of sale had a significant effect on the animal sale price. It was observed that more than one-third of animals (39.60%) were in the advanced pregnant stage (7 months & above) and the majority of them (26.15%) were of 9 months pregnancy stage. The findings of Gokhale and Bhagat (2011) were agreed to the results obtained in the present investigation. The average price realized for these 9th months pregnant animals was the highest (Rs.33412.47±434.14). The animals which were dry and empty realized a much lesser price (Rs.7331.89±230.77) and their percentage was 9.91. The average price realized for the animals which were in milk and pregnant (4th, 5th, 6th months) was comparatively more (Rs.27641.69±1093.27) than that of only pregnant animals (Rs.26982±855.91) which seemed to be obvious as the buyer prefers earning from his animals as early as possible.

Animal class: The percentage of sold animals in cow class was highest (62.04%) compared to heifers and the average price realized was also significantly higher (Rs.28190.61±294.84) compared to heifers (Rs.21289.83±405.02). Gokhale and Bhagat (2011) study indicated average price realized was more for heifers. The trend indicated two types of buyers, those who prefer animals paying back invested amount within the shortest period and the others prepared to invest for a longer period in the form of heifers coming in lactation.

Age of sold animal: The average age of the animal at the time of sale was 59.65±0.54 months. The number of sold animals and sale price of animals increased significantly as age advanced and it reached to peak at the age group of 4.1 to 6 years realizing an average price of Rs.28666.78±500.29 per animal. The findings recorded in the present study did not support the observations of Gokhale and Bhagat (2011) as they noticed highest sale price at 2 to 4 years age group. The sold animal percentage for age group 4.1 to 6 years and 6.1 to 8 years was at par (22.88) and the price realized was not significant. Very few animals of age beyond 10 years (7.42%) were found sold with an average price realized was Rs.24984.17±812.14.

Site of sale: Although the price realized was higher for animals sold in the market (Rs.27067.49±518.77), it was noticed that percentage of sold animals was highest at farmer's door (83.24%). The site of sale had a non-significant effect on animal sale price. The buyers prefer to buy animals at farmer's door probably due to fewer chances of cheating through malpractices like withholding the milk before market day, the coloring of horns, rubbing of teeth's, accompanying newborn calf as a pretext of fresh calving, tendency to hide bad habits of animals like suckling her milk, kicking at the time of milking, habituated to specific milker, the habit of tying hind legs while milking, etc.

Type of buyer: Generally, three types of animal buyers were noticed in the market. Farmer himself as a buyer, a merchant who purchases animals from one market, rear for some period and then sale in another market considering price fluctuations and middleman who helps for performing transactions between seller and buyer on a commission basis. The type of buyer had a significant effect on the animal sale. Merchant purchased the highest animals (60.34%) but the middleman paid the highest average price (Rs.27087.73±864.91) compared to the farmers or merchant buyers (23494.27±418.36 & 26513.03±317.81, respectively). The results in the present investigation match with the observations of Gokhale and Bhagat (2011) for sale percentage but contradict with a price realized.

Animal sold through: Although the sale of animals' trade by farmers was the highest (90.18%), the average price realized was highest for a middleman (Rs.27234.58±746.67) but it was not statistically significant. These results agreed with the findings of Gokhale and Bhagat (2011).

Reason for animal sale: The knowledge of reasons for animals' sale is useful in many ways and the reasons narrated by the animal owners were grouped into eight subgroups as better price, fodder shortage, household need, surplus animal, animal trading as a business, unsatisfied production, old age, and problem breeder. The reasons had a significant effect on animal sale prices. Among all the reasons, the highest percentage (34.16) of animals were sold because of fodder shortage, followed by household needs (24.21%), surplus animal (14.84%), better price (9.76%), problem breeder (7.57%), unsatisfied production (3.45%), old age (2.84%) and trading business (0.41%). 2.75 per cent of farmers were not provided any reason for their animal sale. The household needs narrated by animal owners were daughter's marriage, purchase of land, construction of house and animal shed, repaying of loans, paying children education fees, paying hospital bills, etc. It was also observed that the maximum average price of Rs.35749.92±894.65 was realized when a better price was sought and the lowest Rs.17758.16±594.89 for problem breeder animals. The results obtained in this study for price realized correspond with the results of Gokhale and Bhagat (2011) but differed with reason wise sold animals' percentage.

IV. Conclusions:

It was concluded that the study of different features of animal sales is necessary for the planning and execution of breeding programs. The average sale price of crossbred animals was found to be Rs.25570.78±243.99. CDC category, animal sire, animal sold season, animal lactation stage, animal class, age of the sold animal, type of buyer, and reasons for animal sale considerably affected the animal sale price. This significance indicates their importance for consideration when implementation and evaluation of the impact of crossbreeding programs at the village level are undertaken.

Acknowledgement:

The authors are thankful to the field staff of CDC in-charges and supervisor Mr. S B Babar engaged in collecting farmer views in the cattle development center's area. Financial support from the Indian Council of Agricultural Research through the Central Institute for Research on Cattle (CIRC) for field progeny testing program is gratefully acknowledged.

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Table-1. Sale of crossbred animals according to different aspects

#	Sale aspects	Percent to total (N=4581)	Average price realized (Rs.)
1	CDC category **		
	Under FPT	98.10%	25644.99±3.69 ^a
	Non FPT	1.90%	21740.22±125.30 ^b
2	Animal sire**		
	HF100%	1.40%	31896.87±2359.99 ^a
	HF50%	1.44%	24632.12±1865.79 ^{ab}
	HF62.5%	0.87%	26443.50±2249.46 ^{ab}
	HF75%	14.87%	24847.53±667.13 ^b
	Private	1.27%	26277.58±2253.52 ^{ab}
	Not available	80.16%	25590.87±269.33 ^b
3	Animal sold season*		
	Summer	29.82%	26283.11±460.76 ^a
	Rainy	38.49%	25608.75±388.42 ^b
	Winter	31.70%	24855.08±426.42 ^b
4	Animal lactation stage ***		
	4 Months pregnant	7.14%	21074.92±857.80 ^a
	5 Months pregnant	5.78%	24979.24±1016.15 ^b
	6 Months pregnant	5.87%	27371.37±1016.63 ^b
	7 Months pregnant	5.81%	26219.73±1007.87 ^{bd}
	8 Months pregnant	7.64%	28835.81±802.85 ^{bcd}
	9 Months pregnant	26.15%	33412.47±434.14 ^{bcd}
	In milk & 4 Months pregnant	6.31%	28360.89±1090.13 ^b
	In milk & 5 Months pregnant	5.13%	27186.38±1130.82 ^b
	In milk & 6 Months pregnant	5.30%	27377.77±1058.88 ^b
	In milk & Empty	14.23%	21714.28±488.75 ^c
	Dry & Empty	9.91%	7331.89±230.77 ^{bce}
	Heifers	0.72%	13748.48±1210.80 ^a
5	Animal class ***		
	Cow	62.04%	28190.61±294.84 ^a

	Heifer	37.96%	21289.83±405.02 ^b
6	Age of sold animal ***		
	Up to 1 Yr.	6.66%	14245.57±867.48 ^a
	1.1 to 2 Yrs.	8.54%	15851.27±726.09 ^a
	2.1 to 4 Yrs.	21.17%	26385.18±544.74 ^b
	4.1 to 6 Yrs.	22.88%	28666.78±500.29 ^{bc}
	6.1 to 8 Yrs.	22.88%	27989.95±486.96 ^{bc}
	8.1 to 10 Yrs.	10.46%	27423.78±707.13 ^b
	Above 10 Yrs.	7.42%	24984.17±812.14 ^b
7	Site of sale		
	Farmer's door	83.24%	25270.03±273.64
	In Animal market	16.76%	27067.49±518.77
8	Type of buyer ***		
	Farmer	32.55%	23494.27±418.36 ^a
	Merchant	60.34%	26513.03±317.81 ^{bc}
	Middleman	7.12%	27087.73±864.91 ^c
9	Animal sold through		
	Farmer himself	90.18%	25389.41±257.93
	Middleman	9.82%	27234.58±746.67
10	Reason for animal sale ***		
	Better price	9.76%	35749.92±894.65 ^a
	Problem breeder	7.57%	17758.16±594.89 ^b
	Trading business	0.41%	26631.57±2176.71 ^{ab}
	Fodder shortage	34.16%	25184.30±396.63 ^{bc}
	Household needs	24.21%	23987.30±486.77 ^{bc}
	Old age	2.84%	25342.30±1154.40 ^{bc}
	Surplus animal	14.84%	27634.57±666.37 ^{bcd}
	Unsatisfied production	3.45%	25488.66±1264.29 ^{bc}
	Non respondents	2.75%	18765.87±1205.00 ^b
	Overall Average	100%	25570.78±243.99

Means with same superscripts in columns did not differ significantly. ***p<0.001, **p<0.01, *p<0.05

R L Bhagat, et. al. "A study on field crossbred animals' sale pattern." *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)*, 14(9), 2021, pp. 15-18.