Cattle herd structure and herd dynamics in Gaushalas of Haryana

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ABSTRACT

This paper describes cattle herd structure and herd dynamics from a data set of 105 Gaushalas selected form Haryana state based on certain criteria. These Gaushalas, an important source of indigenous germplasm, were maintaining more than 96000 heads of cattle. Hariana, being the native breed of this area, is the predominant breed in these Gaushalas constituting about 71 % of the total cattle followed by crossbreds (23%). Herd structure of these Gaushalas indicated that majority of the animals (>72%) were of more than 3 years of age. Females constituted more than 82 % of the total cattle. Breeding bulls constituted only 17 % of the adult males. Majority of the adult females were dry (67 %) while only 6 % were in milk. The average inflow and out flow of cattle was 245 and 168 heads respectively. On an average, a Gaushalas received about 153 animals from general public, 36 brought by the Gaushala management, 26 by district administration and 27 recovered by police (illegal transportation of animals). Gaushala management purchased very few animals (an average of 2 animals). Disposal of animals from these Gaushalas was very less. Majority was due to deaths (about 100 animals) followed by sale (49 animals) and donated to public (19 animals). The study will be helpful in identifying Gaushalas as conservation centre and formulating conservation strategies for improvement of cattle genetic resources of these Gaushalas, especially Hariana breed.

Keywords: Breed, cattle, gaushala, Hariana, herd structure, inflow, outflow

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INTRODUCTION

During the First Five Year Plan, there were nearly 3,000 Gaushalas spread over the whole country. At present, India is having more than 4000 Gaushalas spread out in its length and breath. The number of Gaushalas in Haryana is around 225. The present 'Gaushala Model' in the country is primarily engaged in Panjarapole (homes for old and infirm cows) activities. Most of the Gaushalas are primarily catering to the needs of non-lactating, weak, unproductive and stray cattle. However, the scenario during recent years is showing positive changes. With the growing awareness of organic farming, bio-fertilizers, bio-pesticides, bio-energy and Panchgavya medicines, the Gaushalas are entering a new phase. A few fore-front Gaushalas are striving to maintain indigenous purebred cows and produce quality males, thereby, contributing to the improvement and conservation of the cattle breeds. In spite of all such ideas reaching them, most of the Gaushalas are still the same as these used to be two-three decades ago primarily because of lack of concrete policy direction/intervention, technical know-how and marketing infrastructure. Realizing this gap, National Commission on Cattle (2002) suggested that 'Village Gaushalas' would have more chances of succeeding than did the Gosadans envisaged by the Datar Singh Committee. It is known that the Gaushalas have a distinct contribution in indigenous cattle care but much needs to be done in developing Gaushalas as cattle improvement and conservation centres. Gupta and Yadav (2005) delineated ten goals for 'Gaushala Development' emphasizing on the roles of district administration and R&D agencies. Yadav and Vij (2010) developed a computerized inventory of Gaushala resources with the aim of establishing an information system to support the day-to-day program and management needs of the Gaushalas and suggested its use in cattle breed improvement and conservation programmes.

Herd structure and herd dynamics plays important role in livestock breeding programmes. Information on availability and exchange of breeding individuals among Gaushalas, ages of breeding males and females, and breeding structure (number of breeding females/male) are essential for planning and executing an improvement programme. The aim of this paper is to report on herd structure and herd dynamics of cattle in Gaushalas of Haryana. The information will be

helpful in taking decisions on managemental aspects, breeding policy, buying and selling strategies. It will also be very helpful in formulating improvement and conservation strategies of cattle genetic resources in Gaushalas.

MATERIALS AND METHODS

Primary data on breed-wise and age-wise cattle population and disposal of animals were collected from 105 Gaushalas of Haryana using a pre-tested structured questionnaire. Only those Gaushalas were selected for data recording which satisfied the criteria of having cattle population of 200 or more, registered with Animal Welfare Board of India, registered with Haryana Rajya Gaushala Sangh and listed for getting recent financial assistance from Haryana Government. Visits were undertaken to the selected 105 Gaushalas and data for the year 2007 were collected from Gaushala records, interviews of Gaushala management personnel and actual observations. The data have been presented in totals and averages with their standard errors.

RESULTS AND DISCUSSION

Totals and averages of herd dynamics of investigated gaushalas are presented in tables 1-3. Breed wise cattle population of these gaushalas is depicted in Fig. 1. Gaushalas in Haryana are an important source of indigenous germplasm maintaining more than 96000 heads of cattle. Hariana, being the native breed of this area, is the predominant breed in these Gaushalas constituting about 71 percent of the total cattle followed by crossbreds (23 percent). Only 3 percent of animals were of Sahiwal type while Tharparkar type animals were very few. Herd structure of these Gaushalas indicated that majority of the animals (>72 percent) were of more than 3 years of age. Females constituted more that 82 percent of the total cattle and males only about 18 percent. Breeding bulls constituted only 17 percent of the adult males in these Gaushalas and bullocks were 38 percent. Majority of the adult females were dry and pregnant (67 and 12 percent respectively) while only 6 percent were in milk. This pattern of herd structure is mainly due to the fact that in majority of the cases only discarded and spent cows are brought to Gaushalas while males are used by the farmers as bullocks for providing draught power for agricultural operations.

The average inflow and out flow of cattle was 24[illegible] and 168 heads per Gaushala respectively. The inflow variables constituted cattle left by owners, stray cattle brought by Gaushala management, stray cattle left by district administration, cattle purchased by Gaushala management and cattle recovered by police. The outflow variables were cattle died, sold and donated. There is a regular inflow of cattle in these Gaushalas. On an average, a Gaushalas received every year about 153 animals from owners/general public, 36 brought by the Gaushala management, 26 by district administration and 27 recovered by police. Very few animals (about 2 animals/Gaushala/year) were purchased by the Gaushala management. Disposal of animals from these Gaushalas was very less mainly due to deaths and selling (about 100 and 49 respectively). A few animals (about 18-19 per Gaushala), mainly male calves, were also donated to other Gaushalas, village panchayats and genuine farmers. The sale and donation of cattle was generally restricted. These practices were observed only in genuine cases. Mostly male calves were sold/donated to other nearby Gaushalas, village panchayats and even to farmers from other states.

The cattle genetic resources of these Gaushalas especially Hariana breed can be used for conservation purposes. Lack of scientific record keeping and exchange of information among Gaushalas and between Gaushalas and development/research agencies, has limited their utility in the past in the breed improvement programmes of the State and Central Governments. There is a great possibility of improving the livestock wealth of Gaushalas if suitable intervention is provided at appropriate time. Knowledge of herd structure and herd dynamics in the Gaushalas offer an opportunity in identifying elite cows on the basis of peak milk yield. Such animals should be maintained separately in each Gaushala. These females should be inseminated/bred with the semen/bull of the same breed having high breeding value. These cows should be tagged and recorded for morning and evening milk yield at monthly intervals and ranked accordingly. Every year, low producing cows in each Gaushala (about 10%) should be replaced with new identified elite cows. The males produced from the elite matings should be reared as future bulls. These young bulls should be put to vigorous selection at each stage and finally only about 10 percent of these should be

Table 1. Breed-age wise cattle population

Breed	Hariana	Sahiwal	Tharparkar	Crossbred	Others
<1 year					
Male	2679	211	16	1147	155
Female	3587	256	6	1330	129
Sub Total	6266	467	22	2477	284
1-3 years					
Male	3597	313	19	2125	269
Female	6933	332	9	3115	341
Sub Total	10530	645	28	5240	610
>3 years					
Male	3880	236	16	2034	182
Female	47935	1220	61	12340	1590
Sub Total	51815	1456	77	14374	1772
Total	68611	2568	127	22091	2666

Table 2. Breed-wise adult cattle population (>3 years)

Category	Hariana		Sahiwal		Tharparkar		Crossbred		Others	
Breeding										
Bull	587	-	109	-	12	-	327	-	62	-
Bullocks	2021	-	20	-	3	-	322	-	51	-
Others	1272	-	107	-	1	-	1385	-	69	-
Milking	-	2225	-	303	-	2	-	1181	-	110
Pregnant	-	5560	-	250	-	4	-	1852	-	165
Dry	-	32475	-	598	-	51	-	8029	-	807
Heifers										
	-	7675	-	69	-	4	-	1278	-	508
Total	3880	47935	236	1220	16	61	2034	12340	182	1590

Table 3. Cattle herd dynamics in Gaushalas of Haryana

	Mean	S.E.
Cattle left by owners	153.19	17.13
Stray cattle brought by Gaushala management	36.19	5.76
Stray cattle left by district administration	25.87	6.98
Purchased by Gaushala management	2.01	0.61
Recovered by police	27.41	4.87
Died	100.49	10.19
Sold	49.10	10.76
Donated	18.51	6.53

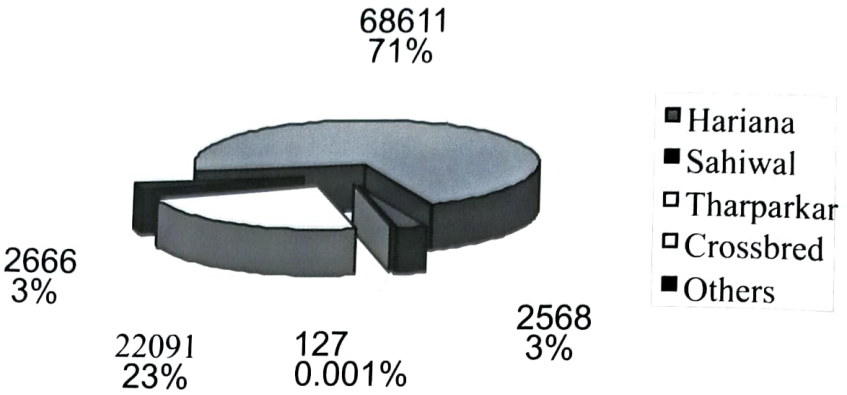

Fig 1. Breed wise total cattle population of Gaushalas

selected as breeding bulls. The semen from these bulls should be frozen and used in these Gaushalas and also in the farmer's herds. This will not only conserve the breed but will also make it uniform and improve its productivity. If planned properly, these Gaushalas can become important sources for in-situ conservation of indigenous breeds and can also be used for progeny testing of large number of bulls. The information will be helpful in taking decisions on management aspects, breeding policy, buying and selling strategies.

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