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Identification of constraints in umblachery cattle rearing

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Abstract
A baseline study was conducted in Korukkai village of Thiruvarur district among 30 randomly selected Umblachery cattle rearers to identify the major constraints in Umblachery cattle rearing. A pre tested interview schedule was prepared to collect the data about the constraints. The identified constraints were prioritized by using Garrett ranking technique. The findings of the study revealed lack of grazing land, decrease in purebred Umblachery bull population for breeding, reluctance of Umblachery cattle rearers towards artificial insemination, high cost of natural mating, and preference of high milk yielders over the indigenous cattle by the farmers as major constraints in Umblachery cattle rearing.

Keywords: Umblachery cattle, constraints, Thiruvarur, baseline study

Introduction
India has high potential for livestock rearing which supports the livelihood of the rural poor. Most of the rural family generates income through maintaining various species of livestock. The country is the largest producer of milk and buffalo meat, second largest producer of chevon, third in egg production and eighth in overall meat production (Anonymous, 2024a) [3]. Moreover, the country has the total livestock population of 535.78 million and the indigenous animal holds the notable share in the population (20th Livestock census). There are 220 registered indigenous livestock breeds with about 53 breeds of cattle, 20 breeds of buffalo, 39 breeds of goat, 45 sheep breeds, 14 breeds of pig, 20 chicken breeds, 3 of each dog, duck and donkey breeds etc. (Anonymous, 2024b) [4].
Among the indigenous breeds of Tamil Nadu, Umblachery cattle is an excellent draught breed known for its strength and sturdiness with a characteristic white star marking on the forehead, white socks marking on all the limbs and has a white tail switch. The home tract of Umblachery is the Cauvery delta region especially Thanjavur, Thiruvarur and Nagapattinam districts (Anonymous, 2024c) [5]. Even though it is well known for draught power, the cows are poor milkers with the milk yield of 1-1.2 lit/day with fat content of about 4.94%, SNF of 7.8 % (Rajendran 2007) [9] and is rich in Vitamin A, D, E, K, amino acids, calcium, magnesium, iron and nitrate (Roopavathy 2020) [11]. Even though Umblachery breed has very good draught power and nutrients in milk many farmers face a variety of constraints in its rearing. Constraints are the circumstances or causes which prohibits the farmers from adoption of improved management practices (Rathod *et al*., 2011) [10]. The low productivity of Umblachery cattle results due to its draught nature and also affected by climatic, social and economical factors. With these factors, the present baseline study was conducted with the specific objective of identifying the constraints faced by the Umblachery cattle rearers.

Methodology
The baseline study was conducted at Korrukkai village of Thiruvarur district since it is the home tract of Umblachery cattle breed. The baseline study was conducted among 30 randomly selected Umblachery cattle rearers in the study area. Interview schedule was prepared to identify the constraints of Umblachery cattle rearers and it was put for pretesting in the non-sample area. Based on the results necessary modifications were carried out to get the well-structured interview schedule to collect data. The collected data was analysed by using Garret ranking technique to prioritize the constraints.

Garrett ranking technique

Garrett ranking technique was used to rank the constraints observed by the Umblachery cattle rearers. The order of constraints given by the respondents was converted into ranks by using the following formula.

$$\text{Percentage position} = \frac{100\ (R_{ij} - 0.5)}{N_j}$$

Where,

Rij = Rank given for the i^{th} variable by j^{th} respondent.

N_j = Number of variable ranked by j^{th} respondent.

With the help of Garrett's table, the per cent position estimated is converted into scores. For each constraint, the scores of each individual were added and total values of score were calculated. The constraints with the highest mean score value is considered as the foremost important constraint.

Results and Discussion

It is clearly seen from the table that lack of grazing land is observed as the foremost constraint faced by the Umblachery cattle rearers with the mean score of 76.68. Grazing is their prime mode of feeding in Umblachery cattle and is highly dependent on the availability of grazing land; the narrowing of grazing land leads the farmers to give up on Umblachery cattle rearing. Diminishing in the size and productivity of grazing land may be due to various factors like urbanization, conversion of grazing lands for intensive agricultural production, other infrastructure development and encroachment of communal grazing lands etc. (Ainlawar *et al*., 2012) [2].

Next to the lack of grazing land, decrease in pure bred Umblachery bull population (Mean score: 70.96) is observed as an impediment in Umblachery cattle rearing. This may be due to the fact that the cost and labour involved in maintaining Umblachery bull is high which leads to lack of interest among Umblachery cattle rearers since, they solely prefer natural service. Reluctance of Umblachery cattle rearers towards artificial insemination is observed as the third important constraint with the mean score of 57.22. This may be due to their traditional method of rearing, depending nature on natural mating, disinterest towards artificial insemination and social taboos leads to decrease the Umblachery population.

Inadequate housing facilities is identified as the next impediment in Umblachery cattle rearing especially during rainy season (Mean score 53.96). Since, small herd farmers with 2-3 cattle do not provide adequate housing facilities since the income generation is scanty. High cost of natural mating is the fifth important constraint faced by the Umblachery cattle rearers (Mean score 53.0). This may be due to the preferably of Umblachery rearers towards natural mating over artificial insemination for breeding purpose. Moreover, the cost and labour involved in maintenance of purebred bull is high and in turn leads to increase in cost of natural mating.

Preference of high milk yielders over the indigenous breed by the farmers is the sixth important barrier in Umblachery cattle rearing (Mean score: 41.88). Since, Umblachery cattle is a poor milker (1-1.5lit/day); leads the farmers to prefer cross bred cattle to produce more milk. Use of tractors and other machineries in agriculture is observed as the next important constraint with the mean score 39.84. In the present scenario ploughing by Umblachery cattle is preferred only by the small scale or marginal farmers whereas large scale farmers prefer tractors for ploughing as they save sufficient amount of time and labour.

It is seen from the table that high cost of fodder during rainy season as a constraint with the mean score 29.08. This may be due to the gazing nature of Umblachery rearing, but grazing of the cattle is difficult during rainy season. Further, during this time the availability of natural grazing land decreased due to waterlogged pasture or excessive growth of weeds, leading to greater reliance on purchased fodder. Since there is barely any income from cattle reared in small numbers, the cost of production increases. The lack of proper marketing channels for Umblachery cattle and their products is observed as the next important constraint can significantly impact both farmers and consumers (Basavarajappa and Chinnappa 2012) [6]. Without proper channel to sell the cattle and its products, farmers struggle to reach potential buyers resulting in low price and reduced profitability.

Conclusion and recommendations

The findings of the study concludes that lack of grazing land, decrease in pure bred Umblachery bull population, reluctance of Umblachery cattle rearers towards artificial insemination, high cost of natural mating and preference of high milk yielders over the indigenous cattle breed by the farmers as major constraints in Umblachery cattle rearing. Even though there are many constraints in Umblachery cattle rearing, the farmers prefer to rear the cattle since they are highly attached with their social and sentimental values. Hence, these constraints should be addressed by the proper utilization of waste land, financial assistance from the government agencies for Umblachery bull management, organizing awareness programmes about the benefits of artificial insemination for the Umblachery rearers etc. Further, the policy makers and other stakeholders should take measures for providing loans, subsidies, incentives to Umblachery cattle rearers to promote Umblachery rearing.

Table: Prioritization of constraints in Umblachery cattle rearing (n=30)

Sl. No.	Constraints	Garrett mean score	Rank
1.	Lack of grazing land	76.68	I
2.	High cost of natural mating	53.0	V
3.	Inadequate housing facilities	53.96	IV
4.	Lack of proper marketing channel	27.38	IX
5.	Reluctance of Umblachery cattle rearers towards artificial insemination	57.22	III
6.	Preference of high milk yielders by the farmers	41.88	VI
7.	Lack of purebred Umblachery bulls	70.96	II
8.	High cost of fodder during rainy season	29.08	VIII
9.	Use of tractors in agriculture	39.84	VII

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