www.ThePharmaJournal.com

The Pharma Innovation

Anuj Kumar Shukla
M.Sc (AGB) Scholar,
Department of Animal
Husbandry & Dairying,
SHUATS, Allahabad, Uttar
Pradesh, India

Dr. Rampal Singh
Assistant Professor, Department
of Animal Husbandry &
Dairying, SHUATS, Allahabad,
Uttar Pradesh, India

Dr. Sarvjeet Herbert
Professor, Department of Animal
Husbandry & Dairying,
SHUATS, Allahabad, Uttar
Pradesh, India

Ravi Ranjan
M.Sc (AGB) Scholar,
Department of Animal
Husbandry & Dairying,
SHUATS, Allahabad, Uttar
Pradesh, India

Vikash Kumar
M.Sc (AGB) Scholar,
Department of Animal
Husbandry & Dairying,
SHUATS, Allahabad, Uttar
Pradesh, India

Study on correlation between reproductive trait (service period) with productive trait (dry period) in Gangatiri breed

Anuj Kumar Shukla, Dr. Rampal Singh, Dr. Sarvjeet Herbert, Ravi Ranjan and Vikash Kumar

Abstract
The present study was conducted on correlation between reproductive and productive traits in Gangatiri breed. The data for study were collected from history sheets maintained at STATE LIVESTOCK CUM AGRICULTURAL FARM, ARAJILINE, VARANASI,-221305 (UTTAR PRADESH) for period 2000-2017. The reproductive trait selected from history sheets were first, second and third lactation service period and the Productive traits were second, third and fourth lactation dry period. The mean for first, second and third service period were 188.25, 120.33 and 137.83 days respectively. The mean value of productive trait such as second, third and fourth lactation dry period is 174.15, 148.63 and 157.67 respectively. Data were analyzed statistically to determine the correlation between reproductive and productive trait. The correlation between first service with second dry period were positively significant (0.57), second service period with third dry period were negatively non-significant (-0.035) and third service period with fourth dry period were positively non-significant (0.195).

Keywords: Gangatiri breed, reproductive trait, service period, productive trait, dry period.

Introduction
Livestock are raised in an agricultural setting to produce labor and commodities such as meat, eggs, milk, fur, leather, and wool. The term is sometimes used to refer solely to those that are bred for consumption, while other times it refers only to farmed ruminants, such as cattle and goats.

Animal husbandry practices have varied widely across cultures and time periods. Originally, livestock were not confined by fences or enclosures, but these practices have largely shifted to intensive animal farming, sometimes referred to as "factory farming". Now, over 99% of livestock are raised on factory farms. These practices increase yield of the various commercial outputs, but have also led to negative impacts on animal welfare and the environment. Livestock production continues to play a major economic and cultural role in numerous rural communities. NASS (2012) and USDA (2017)

The cattle and buffalo account for more than two third of the total output value of the livestock sector. Various indigenous breed of cattle in the country are the result of thousands of years of selection, evolution and development of the wild species in the process of domestication to the local agro climatic conditions. These breed are now losing ground due to intense competition from other breed and risk of economic viability under the present system of management.

There are 33 well-defined breed of cattle apart from several non-descript types and some lesser-known breed (Chand, 2011) [1].

Gangatiri is an important dual-purpose cattle breed of Uttar Pradesh state of India. The breed is significantly contributing to the livelihood of the people due to its good draft ability and lactation milk yield. Average daily lactation milk yield of Gangatiri breed ranged between 4-6 litters/day with a lactation length of 150-250 days. The inter calving period varies between 14-24 months. The average fat is 4.33% (range 3.1-6.0%) and snf content 8.2% (range 7.87-8.42%). The average body length, height at withers and chest girth is 110, 124, 153 cm in breed and 121, 142, 146 cm in bullocks under field conditions, respectively.
1. This breed has acquired by natural selection following adaptation traits:
2. High degree of heat tolerance
3. Resistant to certain diseases
4. Ability to survive on low feed and fodder resources.

Correspondence
Anuj Kumar Shukla
M.Sc (AGB) Scholar,
Department of Animal
Husbandry & Dairying,
SHUATS, Allahabad, Uttar
Pradesh, India

Gangatiri is a dual purpose breed well known for average milk and draft ability. The habitat of Gangatiri breed is Balia, Ghazipur of eastern Uttar Pradesh, which is well adapted to eastern U.P. agro climatic conditions.

Statistical Analysis

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. For Analysis of phenotypic correlation among the two traits X and Y mostly the Karl Person's (1896) correlation formula used Venkatarama (2018). The following is Karl Pearson's correlation formula.

Simple correlation

$$\text{rxy} = \frac{cov\ xy}{vx.vy}$$

$$= \frac{\sum xy = \frac{(\sum x-)}{N}\sum y}{\sqrt{\{\sum x^2 - \frac{(\sum x)}{N}\}\{\sum x^2 - \frac{(\sum x)}{N}\}}}$$

Where

rxy = correlation coefficient between characters x and y.
Covxy = co-variation between characters x and y.
Vx = variance for x character.
Vy = variance for y character.

Measurements of the traits

The data pertaining to parameters viz. first, second and third service period(days), calving interval, gestation period, lactation length, lactation milk yield and dry period were collected, tabulated and analyzed for study
The raw data were entered and sorted into MS Excel sheet then transferred to the analytical Web Based Agricultural Statistics Software Package (WASP-2.0) for descriptive result.
All data were expressed as mean ± SD ± correlation.

Result and discussion

The present study on correlation between reproductive trait with productive trait in Gangatiri breed was carried out of the data.

The following observation was made.
1. The mean of service periods in first, second and third lactations of Gangatiri was 188.25, 120.325, 137.825 days, respectively.

Table 1: The mean and standard deviations of reproductive traits of Gangatiri breed at different calving.

Parameters	Means	S.D.
First Service periods	188.25	94.17
Second Service periods	120.325	76.77
Third Service periods	137.825	89.35

The data regarding lactation length, lactation milk yield, and dry periods in three lactations of Gangatiri breed are presented in the table.
The following observation were made
1. The mean of Dry Periods of Gangatiri was 174.15, 145.05, 157.675 days, respectively.

Table 2: The mean and standard deviation of productive traits in Gangatiri breed at different age.

Parameters	Means	S.D.
Second Dry periods	174.15	77.80
Third Dry periods	148.625	53.89
Fourth Calving interval	157.675	72.53

Data regarding first, second and third service periods (days) and second, third and fourth dry periods (days).Lactations service periods in Gangatiri breed of three lactations (1st, 2nd and 3rd) ranged from51-470, 25-321 and 35-433 days while dry periods (2nd, 3rd and 4th) 48-472, 65-298 and 83-415 days respectively. Mean values of service periods in first, second and third lactations were 188.25, 120.325 and 137.825 days, whereas second, third and fourth dry periods were 174.15, 148.625 and 157.675 days respectively. Kumar (2012) reported negative genetic correlations of SP with DP, LL, LMY, and MYPD were -0.034±0.32, -0.03±0.25, -0.02±0.37, -0.15±0.5, -0.20±0.32, respectively in Rathi cattle. First service period with second dry period were positively significant and third service period had positively non-significant correlation with fourth lactation dry period whereas second service period had negatively non-significant correlation with third lactation dry period. The data on first second and third lactations service periods (days) in breed of three level Gangatiri inheritance. It was noted that in general the highest lactations service periods (470 days) was recorded in breed belonging first lactations followed by 321 and 433 in second and third lactations, respectively whereas highest dry periods (472) was recorded in breed belonging second lactations followed by 298 and 415 in third and fourth lactations, respectively. Partha nath et al. (1970) reported the average lengths of calving interval (407.2 ± 77.5 days) and dry period (151.1 ± 55.8 days) are reported in Italian buffaloes. The correlation (r = 0.991) between calving interval was highly significant (P < 0.01). The coefficient of correlation between dry period and subsequent calving interval was positive and not significant.
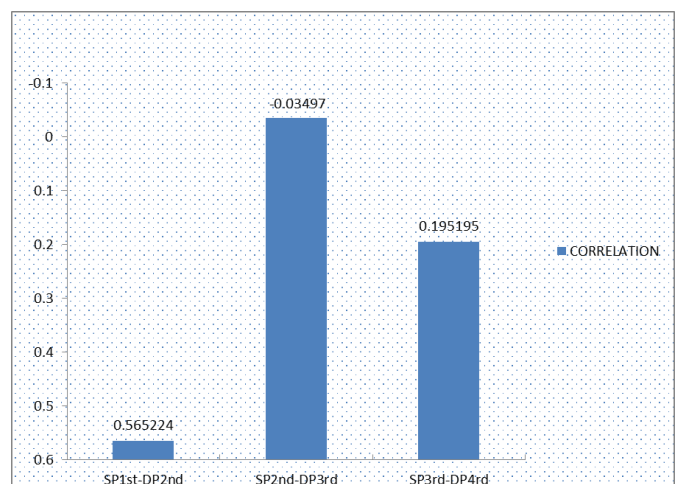
Fig 1: Correlation between SP-DP at different age of calving's in

Conclusion

The present investigation reproductive trait Lactations service periods in Gangatiri breed of three lactations (1st, 2nd and 3rd) ranged from51-470, 25-321 and 35-433 days while dry periods (2nd, 3rd and 4th) 48-472, 65-298 and 83-415 days respectively. Mean values of service periods in first, second and third lactations were 188.25, 120.325 and 137.825 days,

whereas second, third and fourth dry periods were 174.15, 148.625 and 157.675 days respectively. First service period with second dry period were positively significant and third service period had positively non-significant correlation with fourth lactation dry period whereas second service period had negatively non-significant correlation with third lactation dry period.

Reproductive traits have the significant correlation with the productive traits should be considered in selection of dairy animals.

Traits having non-significant correlation may be taken into account for selection, since they also play an important role in breed improvement.

References

1. Chand T. Genetic evaluation of life time productivity in Tharparkar cattle. M.V.Sc. Thesis, RAJUVAS, Bikaner, 2011.
2. Kumar D. Genetic Evaluation and Improvement of Economically Important Traits of Rathi Cattle. M.V.Sc. Thesis, RAJUVAS, Bikaner, 2012.
3. Nass. census of agriculture - publications - Usda. Retrieved, 2012.
4. Nehra KS. Prediction of sire breeding values for economic traits in Rathi cattle. Ph.D. Thesis, RAU, Bikaner, 2004.
5. Partha Nath Roy Choudhary. Study on service period, calving interval and dry period in Italian cows. Tran's boundary and emerging diseases. 1970; 17(3).
6. Singh RP. Keynote address by chairman of Union Minister of Agriculture & Farmers Welfare Nuffoods perspective on science and business spectrum. 2017; 46(4):71-72
7. Singh N, Dahiya S, Singh B. Phenotypic and genetic parameters of some economic traits in Sahiwal cattle. Indian J Ani. Sci. 1999; 14(2):297-300.
8. Riecka, Candrak. Analysis of Relationship between Production and Reproduction Traits of Holstein Cattle Population in the Slovak Republic, Scientific papers Faculty of Animal Sciences and Biotechnologies, Timisoara. 2011; 44(1):332-336.
9. Zafar AH, Ahmad M, Rehman SU. Study of some performance traits in Sahiwal breed during different periods. Pak. Vet. J. 2008; 28(2):84-88.