Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com

E-ISSN: 2320-7078
P-ISSN: 2349-6800
www.entomoljournal.com
JEZS 2020; 8(2): 1352-1356

Received: 12-01-2020
Accepted: 14-02-2020

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Knowledge of dairy farmers and incidence rate of reproductive disorder in dairy animal under field condition in eastern plain zone of Uttar Pradesh, India

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Abstract
The present study was conducted in district Barabanki, Uttar Pradesh. District Barabanki, having six blocks, out of six blocks in which, three blocks namely Trivediganj, Ram Nagar and Masauli were selected randomly and from each selected block, two villages were selected by applying simple random sampling technique. For the present study information were generated from 120 farmers and 20 farmers from each selected village, which had at least one milking dairy animal at the time of investigation. The reproductive disorders born in dairy animals due to improper feeding, breeding and health care management practices. So, a study was conducted to evaluate the knowledge and incidence rate faced by dairy farmers on reproductive disorders. Majority (51.67%) of the dairy farmers had medium knowledge regarding reproductive disorders (71-80). Overall incidence rate of reproductive disorder in dairy animals in research area was maximum in buffalo 76.05 percent and minimum in indigenous cattle that is 48.77 percent. Dystocia, abortion and stillbirth were mostly treated by veterinary doctors and remaining reproductive disorders were treated by dairy farmers through own experiences by using grains and herbs.

Keywords: Dairy animals, dairy farmer, incidence rate, knowledge, reproductive disorder

Introduction
Animal husbandry and livestock production is the backbone of Indian agriculture economy and cattle and buffalo are integral part of livestock sector followed by other ruminant species. More than 70% Indian rural households own livestock and a majority of them are smallholders with less than 5 dairy animals [1, 2, 3, 4]. Reproductive problems are the main causes of poor productive performance in small holder dairy farms [5, 6, 7]. Among the major reproductive problems that have a direct impact on reproductive performance of dairy animals are abortion, dystocia, retained fetal membrane (RFM), pyometra, metritis, prolapse, (uterine and vaginal), repeat breeder, anoestrus, have been reported to be the most common economic problems [8, 9, 10]. The reproductive problems could also be classified as before gestation (anoestrus and repeat breeder), during gestation (abortion, vaginal prolapsed and dystocia) and after gestation (retained fetal membrane and uterine prolapse). The impaired function of the reproductive system results failure of a cow to produce a calf yearly and regularly [11, 12, 13]. Many production constraints, mainly reproductive health problems, from a bottle neck in the production process and productivity in the livestock sub-sector. Therefore, study was designed is to generate scientific information on the production system and the major reproductive problems of dairy animals in the study area.

Material and methods
The present study was conducted in district Barabanki, Uttar Pradesh. In district Barabanki, having six blocks, out of six blocks in which, three blocks namely, Trivediganj, Ram Nagar and Masauli were selected randomly and from each selected block, two villages were selected by applying simple random sampling technique. For the present study information were generated from 120 farmers and 20 farmers from each selected village, which had at least one milking dairy animal at the time of investigation. The primary data was collected by personal interview method using a structured interview schedule. The collected data were tabulated, scored and analyzed in the light of the objective.

Knowledge level dairy farmers were operationalised as the amount of information and understanding of the dairy farmers at the time of data collection about reproductive disorders. Knowledge score depend on farmers recall memory. All possible care was taken to cover maximum aspect pertaining reproductive problems of dairy animals. The respondents were classified in terms of having low, medium and high knowledge level of dairy farmers in the research area.

$$Knowledge\ index = \frac{Score\ obtained}{Maximum\ obtainable\ score} \times 100$$

Indigenous technical knowledge is based on knowledge, beliefs and customs, which are internally consistent and logical to those holding them, but at odds with the objectively deduced findings of normal science. Existing practices to manage the reproductive disorders by the small dairy farmer's attempts were made in documenting the indigenous technical knowledge regarding reproductive disorders in dairy animals prevalent in district Barabanki, Uttar Pradesh.

Incidence of reproductive disorders in dairy animals

Incidence uses the number of new cases that occur in a defined population of animals over a specific period. It is operationalised as the ratio of the number of new cases of reproductive disorder to the total number of breedable female animals of each farmer during 2010. Schedule was developed to account number of new cases for particular reproductive disorder and total breedable population of dairy animals during 2010 from farmers as well Veterinary Officers. Various reproductive disorders were operationalised as follows:

Late maturity: Animal do not come in heat even after attaining age of sexual maturity. Ideal age of sexual maturity is 12 months, 18-22 months and 24-36 months for crossbred cow, indigenous cow and buffaloes respectively, but for field condition age of sexual maturity is operationalised as18-24 months, 28-40 months and 26-40 months for crossbred cow, indigenous cow and buffaloes respectively.

Anoestrus: A state of complete sexual inactivity with no manifestation/ sign of oestrus.

Repeat breeding: A cow or a heifer that is clinically normal, fails to conceive for three or more consecutive services (130 days after calving).

Abortion: The expulsion of dead fetus of recognizable size before full term of the gestation period.

Dystocia: An abnormal and difficult birth in which the first or specially the second stage of parturition was markedly prolonged and subsequently found impossible for the dam to deliver without artificial aid.

Retention of placenta: Failure to expel the foetal membranes within 12 to 24 hr. (8-12 hr.) after calving.

Metritis: Inflammation of uterus.

Endometritis: Inflammation of endometrium of uterus.

Pyometra: Accumulation pus in uterus.

Stillbirth: the expulsion of dead fetus after full term of the gestation period.

Incidence is expressed as incidence rate i.e., in percent as follows.

$$\text{Incidence rate} = \frac{\text{No. of new cases of disease}}{\text{Total population at risk} \times \text{Length of time}} \times 100$$

Statistical analysis

The collected data were tabulated keeping in mind the objectives of the study and the ease of statistical analysis. The data collected from the dairy farmers were scored, tabulated and analyzed in the light of the objectives set forth for the present study. Statistical measures used in this study include mean, frequency, percentage, cumulative square root frequency.

Result and discusion

1.1 Knowledge of farmers regarding reproductive disorders in dairy animals

Knowledge is a power. One of the aims of any development programme is to enhance the level of knowledge of target group such that the knowledge thus gained could be applied to accomplish the activities under taken by the groups more efficiently for increased net benefit to the society. Hence, an attempt has been made to study the knowledge of farmers in relation to reproductive disorders of dairy animal. The results of the analysis of knowledge are presented under the following sub heads.

Table 1.1: Knowledge of the dairy farmers on reproductive disorder in dairy animals

Respondents	Categories	Frequency	Percentage
1. Knowledge of Late maturity (n=120) (Range=15-22)	Low (<15) Medium(15-18) High (>18)	3 69 48	2.50 57.50 40.00
2.Knowledge of Anoestrus (n=120) (Range=8-11)	Low (<9.30) Medium(9.30-9.6) High (>9.6)	16 68 36	13.33 56.67 30.00
3.Knowledge of Repeat Breeding (n=120) (Range=10-15)	Low (<10) Medium(10-12) High (>12)	25 50 45	20.70 41.80 37.50
4.Knowledge of Abortion and Stillbirth(n=120)(Range=11-15)	Low (<11) Medium(11-13) High (>13)	2 5 113	1.67 4.17 94.16
5. Knowledge of Dystocia (n=120) (Range=7-12)	Low (<7) Medium(7-10) High (>10)	2 52 66	1.67 40.33 55.00

6.Knowledge of Retention of Placenta (n=120) (Range=3-8)	Low (<6) Medium(6-7) High (>7)	42 68 10	35.00 56.67 8.33
7.Knowledge of Prolapse (n=120) (Range=5-12)	Low (<5) Medium(5-9) High (>9)	2 78 40	1.67 65.00 33.33

A cursory look Table 1.1 reveal in case of late maturity knowledge of dairy farmers revealed that majority of the respondents (57.50%) had the medium level (15-18) regarding reproductive disorder of dairy animals. Whereas 40.00 percent in high level of knowledge and 2.5 percent low level of knowledge respectively.

While in case of knowledge of anoestrous of dairy farmers majority of the respondents (56.67%) had the medium level of knowledge (>9.30) regarding reproductive disorder dairy animals. Similarly 30.00 percent of respondent had high level of knowledge and 13.00 percent respondents were having low level of knowledge respectively. But in case of knowledge of repeat breeding of dairy farmers 41.80 percent of respondent had the medium level of knowledge (10-12) regarding reproductive disorder of dairy animals. Whereas 37.50 percent of respondent were having in medium knowledge and only 20.70 percent respondent were having high level of knowledge respectively.

The same table further reveals that the knowledge of abortion and stillbirth and dystocia of dairy farmers was 94.15 and 55.00 percent of respondent were having high level (11-13), (8-10). Whilst about 4.17 and 40.33 percent of respondent were having medium level of knowledge and almost 1.67and 1.67 percent respondent were possessed low level of knowledge on reproductive disorder of dairy animals. Similarly knowledge of retention placenta and prolapse of dairy farmers was 56.67 and 65.00 percent of respondent were having medium level (6-7), (5-9).While as about 8.33 and 33.33 percent of respondent were having high level of knowledge and almost 35.00 and 1.67 percent respondent were low level of knowledge on reproductive disorder of dairy animals.

Thus, it could be finely concluded that respondent were having medium to high level of knowledge on reproductive disorder of dairy animals in the study area. But most of the dairy farmers know about abortion and stillbirth and prolapse comparison to the others reproductive disorders. Similar finding was reported by Subhash (2011).

Table 1.2: Pooled knowledge of the dairy farmers on reproductive disorder in dairy animals

S. No.	Categories	Frequency	Percentage
1.	Low (< 71)	3	2.50
2.	Medium (71 - 80)	62	51.67
3.	High (>80)	55	45.83
		Mean score 80.38	

The findings presented in table 1.2, revealed that the overall knowledge of dairy farmers, majority of the respondents (51.67%) had the medium level of knowledge (71-80) regarding reproductive disorders of dairy animals as compared to 45.83 percent in high and 2.50 per cent in low levels respectively. It was also observed that most of the farmers were having latest knowledge on various reproductive disorders and manage it on their own level.

Pooled knowledge (figure 1) of dairy farmers was medium means 51.67 percent regarding reproductive disorder like late maturity, anoestrus, repeat breeding, dystocia, abortion, retention of placenta, prolapsed, metritis/ endometritis / pyometra and incidence of stillbirth in the research area. Through awareness campaign in the study area to improve the knowledge of dairy farmers for reproductive disorder in dairy animals, to enhance productivity of dairy animals. It was also observed that most of the farmers were having latest knowledge on various reproductive disorders and manage it on their own level through experiences the rearing of dairy animals. Minimum score was 71 while maximum was 91 with mean score 80.33. Similar finding was reported by Subhash (2011).

1.2 Incidence of reproductive disorders in dairy animals

Table 1.3: Incidence of reproductive disorders in dairy animals

Reproductive Disorders	Incidence (%)		
	Indigenous cow (A=162)	Cross bred (A=252)	Buffalo (A=309)
Late maturity	8.64	5.16	6.47
Anoestrus	6.79	7.14	16.83
Repeat breeding	7.41	15.87	7.77
Dystocia	5.56	4.76	6.15
Abortion	3.70	9.13	7.12
Retention of placenta	6.79	10.32	9.39
Prolapse	4.49	6.75	8.41
Metritis/Endometritis/Pyometra	4.32	7.94	7.44
Stillbirth	0.62	5.36	6.47
Total	48.77	72.62	76.05

In the table 1.3, reveal that to determine incidence of reproductive disorders in dairy animals. Total 414 cows (162 indigenous and 252 crossbred) and 309 buffaloes were found to be affected with reproductive disorders. According to the results of current study in table 4.12, out of 162 indigenous cows total incidence of reproductive disorders was 48.77% which includes incidence of late maturity was 8.64%, anoestrus 6.79%, repeat breeding 7.41%, dystocia 5.56%, abortion 3.70%, retention of placenta 6.79%, prolapsed 4.49%, metritis/ endometritis / pyometra 4.32% and incidence of stillbirth was 0.62%. Our findings are in accordance with Subash (2011).

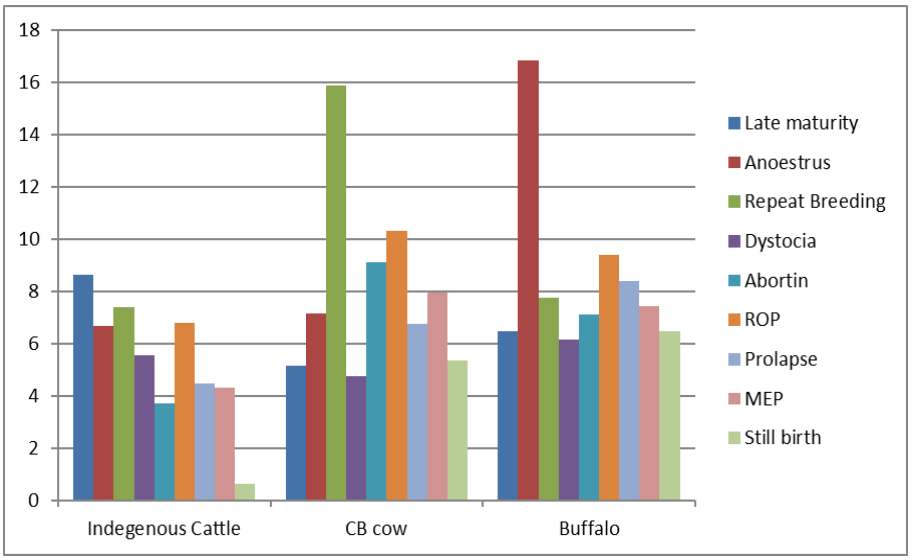

Fig 3: Incidence of various reproductive disorders in dairy animals

Similarly, from 252 crossbred cows, total incidence of reproductive disorders was 72.62%, which includes incidence of repeat breeding was highest 15.87%, incidence of late maturity was 5.16%, anoestus 7.14%, dystocia 4.76%, abortion 9.13%, retention of placenta 10.32%, prolapse 6.75%, metritis/endometritis/pyometra 7.94% and stillbirth 5.36%. (figure3). Present finding are in agreement with Subash (2011).

From 309 buffaloes total incidence of reproductive disorders was 76.05%, which includes incidence of anoestrus was highest 16.83%, incidence of late maturity was 6.47%, repeat breeding 7.77%, dystocia 6.15%, abortion 7.12%, retention of placenta 9.39%, prolapsed 8.41%, metritis/endometritis/pyometra 7.44% and stillbirth was 6.47%. Persent finding are well compared with Subhash (2011).

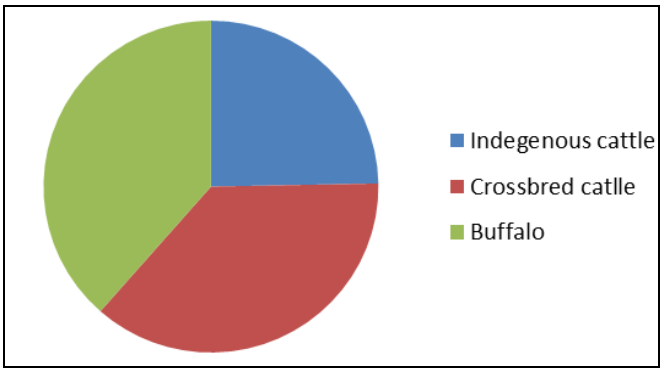

Fig 2: Pooled incidences of reproductive disorders in dairy animals

Finely it is clear that overall incidence rate (figure 2) of reproductive disorder in dairy animals in research area was maximum in buffalo 76.05 percent, minimum in indigenous cattle (48.77%) and followed by cross-bred cow (72.62%). Incidence rate of reproductive disorder in dairy animals in the research area due to the less knowledge and awareness among the dairy farmers regarding feeding of mineral mixture, concentrates either deficiency of mineral mixture in the soil. Similar finding was observed regarding the incidence rate of reproductive disorder in dairy animals by Subhash (2011).

Conclusion

The overall knowledge of the dairy farmers regarding reproductive disorders in the research area majority (51.67%) of the dairy farmers was medium knowledge regarding reproductive disorders. The overall knowledge of the farmers regarding reproductive disorders was 65.41 percent. They have highest knowledge on abortion, stillbirth that is (94%) and lowest on retentions of placenta, late maturity that is (2.5%). Overall incidence rate of reproductive disorder in dairy animals in research area was maximum in buffalo 76.05 percent and minimum in indigenous cattle that is 48.77 percent so there is need to aware the dairy farmers about balanced feed to enhance the reproductive efficiency and to reduce the incidence of reproductive disorders in dairy animals.

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