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Assessment of Adoptive Breeding Practices by Dairy Farmers in District Kanpur Dehat of Uttar Pradesh

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ABSTRACT

The study was carried out on adoption of breeding management practices of dairy animals, reared by 200 Milk Farmers viz: villages of the Maitha, Akbarpur and Derapur and Rasulabad blocks of Kanpur Dehat, district which is located in central plane zone of Uttar Pradesh. Study conducted on ten parameters of adoptive breeding management practices by cattle farmers in which among the cattle rearing 33% farmers kept descript buffaloes, 31.50% farmers heat detected through mucus discharge and bellowing, 60% farmers adopted time of insemination within 12-18 hrs., 51.50 % farmers practice of adopting artificial insemination,65.50% farmers diagnosed the pregnancy by experienced person, 60.00% farmers adopted calving treatment by experienced person, 84.00 % farmers take precautions for treatments of anoestrus, 40.50% farmers practiced to treatment of expulsion of placenta, 43.50% farmers adopted further breading after calving in more than five months and 82.50 farmers adopted the duration of calving interval more than fifteen months. The results from these parameters regarding method of breeding time of insemination after heat detection, type of mating, treatment for placenta expulsion, breeding services after calving, these parameters showed the significant relationship in study area, while breeds of animals, sign of stress/heat, pregnancy diagnosis, treatment for calving, treatments for anoestrus and calving intervals these were showed the non-significant relationship in the district.

HIGHLIGHTS

- Develop better approach to adopting the Artificial Insemination.
- Create awareness of scientific breeding practices like pregnancy diagnosis, calving assistance.

Keywords: Breeds, Heat/Stress, A.I. Pregnancy Diagnosis, Parturition Placenta and Calving Intervals

The breeding practices are the approach of managing the stress in the cows and buffaloes. There is the most important fact is stress because it is directly connected to productivity of animals. The breeding and reproductive performance of dairy animals is influenced by factors such as the environment, animal nutrition, socio-economic status of farmers, adaptability and genetic characteristics of dairy animals, and the type of production system (intensive or extensive). Small-scale dairy farmers have no scientific and technical knowledge of genetics and breeding, but they do have valuable traditional knowledge about breeding and their management. They have various breeding objectives and strategies. When an animal is infertile in the herd those are cumbersome to the dairy owner because cost of another management practices is constant, so the breeding management practices for dairy animal's most important factor. Adoption of practices for breeding services for stressed cow and buffaloes there was easy to care and carrying management of stress, service, insemination/conception pregnancy adoption and management of parturition/calving etc., breeding management practices for the dairy animals. This practice

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is enabling the fertility of cattle and buffalo that directly depend on the breed of cows and buffaloes that depend on their habitat, nutritional content in their diet, lactation period, genotypes and their health because an animal only will prove beneficial when give optimum yield this is the source of income of the farmer, so the farmer should choose the milch breed of animals. The reproductive components are followed by dairy farmers, with heat detection in the animal, mating with selected bulls, artificial insemination, diagnosis of pregnancy in animals, and related attention between the period of conception and the calving process, estimating lactation length are components of animal breeding. Breeding management practices involves such steps proper for reproduction in animals, heat detection, timely insemination and pregnancy diagnosis in dairy animal affects the overall profitability from dairying, Prajapati *et al.* (2015). In breeding management selection of suitable individual that excel in production, and mating those together in planned manner to obtain still better offspring and improving productive and reproductive performance through breeding. The breeding practice also has contribution to obtain maximum yield through upgrading germ-plasma and pedigree selection etc. (Roy *et al.*, 2020).

MATERIALS AND METHODS

The adoption of breeding practices by the dairy farmers in district, to providing appropriate services in stress/ heat conditions for dairy animals and various breeding management related activities like that observation of estrus, service, insemination/conception pregnancy adoption and management of parturition/calving etc., The proper and efficient management of breeding practices in the dairy animals adopted by dairy farmers in district.

Method of sampling

The sample households were selected for collection of the data in the Kanpur Dehat district of U.P. state for the study. The four blocks were chosen and randomly selected from out of ten blocks in the district. There are five villages selected from each block and from each village ten dairy farmers selected. The data was collected by me process of personnel interview as well as the visual situation and one year survey conducted by the author. The total number of two hundred dairy farmers was selected randomly in the district.

Adoption of breeding management practices

To study about the methods of breeding practices for animals adopted by dairy farmers in the district because the information is scheduled that included in various breeding parameters like breed of cows and buffaloes, stress characteristics, mating times and their methods, pregnancy diagnosis, management for parturition, treatment of anoestrus, next breeding and calving intervals etc.

RESULTS AND DISCUSSION

Existing breeding management practices

The breeding management for dairy animals most important factor there are overall management practices adopted by the farmers viz. breed of cows and buffaloes, stress characteristics, mating times and methods, pregnancy diagnosis, parturition, treatment of anestrus, next breeding and calving intervals etc.

Breeds of dairy animals

The farmers kept various breeds of dairy animals in district but majority of was *desi* cows, and murrah and bhadawari breeds of buffaloes, we found that there was a non-significant association between breeds of cows/ buffaloes and blocks (χ^2 = 14.059) data shown in table 1. The overall highest 33.00 per cent of farmers kept the descript buffaloes, which was followed by 26.50 per cent farmers were kept cross bred cows, the 20.50 per cent farmers rearing the non-descript buffaloes and only 20.00 per cent of farmers kept the indigenous cows The maximum farmers from Akbarpur block (36.00 per cent) and least from Maitha block (28.00 per cent) farmers kept the descript buffaloes, the maximum farmers from Derapur 36.00 per cent and least from Maitha block 16.00 per cent farmers rear the crossbred cows, and the maximum from Maitha block 34.00 per cent and least from Akbarpur 10.00 per cent farmers rear the non-descript buffaloes, whereas the maximum from Akbarpur block 26.00 per cent and least descript buffaloes occurs in the Derapur block 14.00

per cent the result show in Fig. 1. This study agreed with Kishore *et al.* (2013) founded that non-descript buffaloes were predominated in his study area.

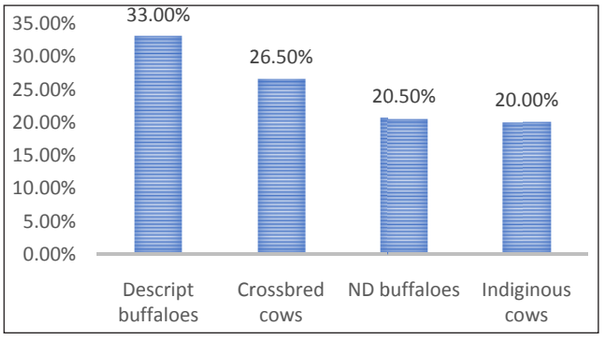

Fig. 1: Breed wise rearing of Dairy Animals in District

Heat detection

The dairy animals attain heat/stress, in healthy condition it is identification is situation-based characteristics that determines the stress of animals which is the period of excitement for adopting of male animals, regarding stress/ heat detection there was a non-significant association between sign of heat detection in dairy animals in the selected blocks (χ^2 = 14.710) data shown in table 1. The overall highest 31.50 per cent of dairy farmers judging the stress in dairy animals by the symptom of (mucus discharge + bellowing), which was followed by 27.00 per cent identified the heat/stress by (mucus discharge), The 22.50 per cent farmers heat/stress detected though (mucus discharge + off feed) and remaining 19.00 per cent of farmers founded the stress in cows and buffaloes by (mounting of animals to another).The maximum farmers from Maitha block 38.00 per cent and least from Derapur + Rasulabad block 28.00 per cent farmers identified the heat though (mucus discharge and bellowing), the maximum farmers from Rasulabad block 42.00 per cent and least from Maitha block 14.00 per cent farmers identified the heat by only (mucus discharge), and maximum from 28.00 per cent from Maitha block and least from Rasulabad 18.00 per cent farmers identified the heat by mucus discharge and animals leaves the of feed and fodders, whereas the maximum from Akbarpur block 26.00 per cent and least from Rasulabad block 12.00 per cent farmers identified heat/stress by the mounting of animal to another the result shown in Fig. 2. This study was supported by the Maheshwari *et al.* (2015), Vishwakarma *et al.* (2018) and Roy *et al.* (2020a).

Fig. 2: Heat Detection Approaches by Farmers

Mating Service

The mating synonymously called copulation or acceptance of semen either natural or artificial process, there was a highly significant association between the mating service of the animals and blocks (χ^2 = 28.541) data shown in table 1. The overall highest farmers (51.50 per cent) provided the artificial insemination (A.I.) for mating service, which was followed by 25.00 per cent farmers adopted both (A.I. + Natural) mating during stress conditions, 23.50 per cent farmers adopted the natural mating during the stress of animals. The maximum farmers from Derapur block 68.00 per cent and least from Maitha block 36.00 per cent farmers provided (A.I.) service during the stress, the maximum farmers from Maitha block 50.00 per cent and least from Derapur and Rasulabad block 14.00 per cent farmers from provided both (A.I.+ Natural) conception for cows and buffaloes during the heat, and maximum farmers from Rasulabad block 36.00 per cent and least from Maitha block 14.00 per cent farmers mated to their animals by natural ways result of this parameters shown in Fig. 3. This study supported by Roy *et al.* (2020a).

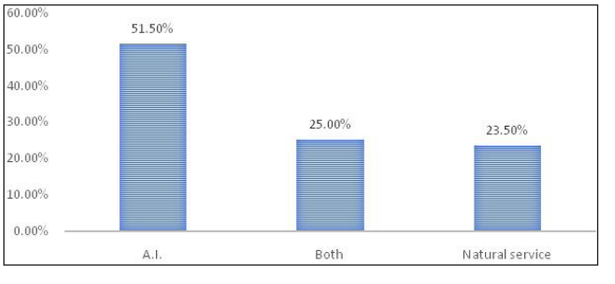

Fig. 3: Mating methods Adopted by Farmers

Acceptance of Conception

The mating activity provided by dairy farmers as selected desired bull for copulation at the timing of the post stress female animals with in the (12-18 hrs) of the duration, there was a highly significant association between insemination in animals in selected blocks (χ^2 = 35.598) data shown in table 1. The overall highest 60.00 per cent of farmers attentive to the inseminate the animals within (12-18 hrs), which was followed by 22.00 per cent farmers arranged the service in more than 18 hrs for conception to cattle and buffaloes and remaining 18.00 per cent farmers adopted quick inseminate during the heat. The maximum farmers from Maitha block 74.00 per cent and least from Rasulabad block 40.00 per cent farmers getting inseminate the cows and buffaloes within the 12-18 hrs., the maximum farmers from Rasulabad 48.00 per cent and least from Derapur block 10.00 per cent farmers getting inseminate the cows and buffaloes more than 18 hrs., and maximum from Akbarpur block 32.00 per cent from and least from Matha block 10.00 per cent farmers immediately inseminated after heat to their animals the result shown in the Fig. 4. The similar result found by Maheshwari *et al.* (2015) and Geeta *et al.* (2020).

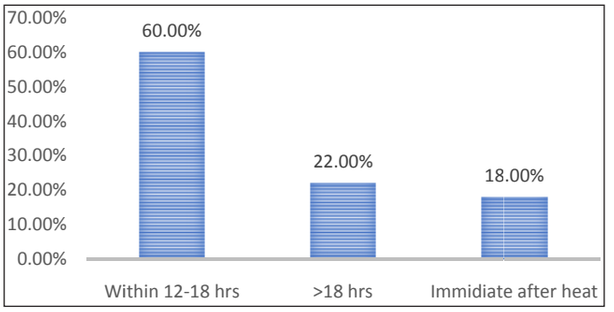

Fig. 4: Time Management and Conception by Farmers

Pregnancy Diagnosis

Pregnancy diagnosis done by either veterinarian or experienced person of society, there was a non-significant association between pregnancy detection in cows and buffaloes and blocks (χ^2 = 4.448) data shown in table 1. The overall highest 65.50 per cent of respondents identified the pregnancy of animals by the experienced farmers, which was followed by 21.00 per cent farmers diagnosed the pregnancy by own experience, and remains 13.50 per cent farmers diagnose the pregnancy by the help of veterinary doctors. The maximum farmers from Akbarpur block 70.00 per cent and least from Derapur block 60.00 per cent farmers judge the pregnancy by experienced person, the maximum farmers from Derapur block 26.00 per cent and least from Akbarpur block 12.00 per cent farmers judging the pregnancy themselves, and the maximum farmers from Akbarpur block 18.00 per cent and least from Rasulabad block 10.00 per cent farmers were diagnose the pregnancy of their animals by veterinary doctors result of this discussion show in Fig. 5. Similar study was found by Kumar (2015).

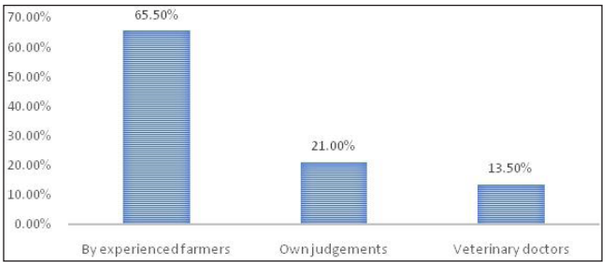

Fig. 5: Adoption of Pregnancy Diagnosis by Farmers

Treatments of Calving

During the parturition process (act of calving) the time should be taken 5-7 hrs respectively the treatments adopted by farmers by help of veterinarian/quack and natural, there was a non significant association between calving treatments (parturition) in selected blocks (χ^2 = 5.825) data shown in table 1. The overall highest 60.00 per cent of farmers were facilitated treatments for calving of cattle and buffaloes by the experienced persons, which were followed by 20.50 per cent farmers, were treated as the natural calving for the cattle and buffaloes, while remaining 19.50 per cent farmer adopted the calving treatments by the help of veterinary doctors. The maximum farmers from Akbarpur block 16.50 per cent and least from Rasulabad block 13.50 per cent farmers attaining of calving treatments by the experienced person, the maximum farmers from Rasulabad block 28.00 per cent and least from Maitha + Derapur block 16.00 per cent farmers adopted calving treatments as the natural process, and maximum from 26.00 per cent from Maitha block and least from Akbarpur block 12.00 per cent farmers accepted the treatments of calving of their animals by the

Table 1: Adoption of Breeding Management Practices by Dairy Farmers in Different Blocks of the District (N = 200)

S. No.	Particular	Unit	Maitha	Akbarpur	Derapur	Rasulabad	Total	χ^2 Value
1	**Breed of animals**							
(a)	Cross bred cows	%	16.00 (8)	28.00 (14)	36.00 (18)	26.00 (13)	26.50 (53)	14.059 NS
(b)	Indigenous cows	%	22.00(11)	26.00 (13)	14.00 (7)	18.00 (9)	20.00 (40)	
(c)	Descript buffaloes	%	28.00 (14)	36.00 (18)	34.00 (17)	34.00 (17)	33.00 (66)	
(d)	Non-descript buffaloes	%	34.00 (17)	10.00 (5)	16.00 (8)	22.00 (11)	20.50 (41)	
2	**Sign of heat detection**							
(a)	Mucus discharge	%	14.00 (7)	18.00 (9)	34.00 (17)	42.00 (21)	27.00 (54)	14.710 NS
(b)	Mucus discharge + bellowing	%	38.00 (19)	32.00 (16)	28.00 (14)	28.00 (14)	31.50 (63)	
(c)	Mucus discharge + off feed	%	28.00 (14)	24.00 (12)	20.00 (10)	18.00 (9)	22.50 (45)	
(d)	Mounting	%	20.00 (10)	26.00 (13)	18.00 (9)	12.00 (6)	19.00 (38)	
3	**Time of insemination after heat detection**							
(a)	Immediate after heat	%	10.00 (5)	32.00 (16)	18.00 (9)	12.00 (6)	18.00 (36)	35.598**
(b)	Within 12–18 hrs	%	74.00 (37)	54.00 (27)	72.00 (36)	40.00 (20)	60.00 (120)	
(c)	More than 18 hrs	%	16.00 (8)	14.00 (7)	10.00 (5)	48.00 (24)	22.00 (44)	
4	**Mating service**							
(a)	Natural service	%	14.00 (7)	26.00 (13)	18.00 (9)	36.00 (18)	23.50 (47)	28.541**
(b)	Artificial insemination	%	36.00 (18)	52.00 (26)	68.00 (34)	50.00 (25)	51.50 (103)	
(c)	Both	%	50.00 (25)	22.00 (11)	14.00 (7)	14.00 (7)	25.00 (50)	
5	**Pregnancy diagnosis**							
(a)	By experienced farmer	%	66.00 (33)	70.00 (35)	60.00 (30)	66.00 (33)	65.50 (131)	4.448 NS
(b)	By veterinary doctors	%	12.00 (6)	18.00 (9)	14.00 (7)	10.00 (5)	13.50 (27)	
(c)	By self	%	22.00 (11)	12.00 (6)	26.00 (13)	24.00 (12)	21.00 (42)	
6	**Calving treatment**							
(a)	By veterinary doctors	%	26.00 (13)	12.00 (6)	22.00 (11)	18.00 (9)	19.50 (39)	5.825 NS
(b)	By experienced person	%	58.00 (29)	66.00 (33)	62.00 (31)	54.00 (27)	60.00 (120)	
(c)	Natural method	%	16.00 (8)	22.00 (11)	16.00 (8)	28.00 (14)	20.50 (41)	
7	**Treatment of anoestrus / repeaters**							
(a)	Yes	%	88.00 (44)	82.00 (41)	90.00 (45)	76.00 (38)	84.00 (168)	4.464 NS
(b)	No	%	12.00 (6)	18.00 (9)	10.00 (5)	24.00 (12)	16.00 (32)	
8	**Treatment for expulsion of placenta**							
(a)	Within 4–6 hrs	%	54.00 (27)	32.00 (16)	44.00 (22)	22.00 (11)	38.00 (76)	21.614**
(b)	Within 10 hrs	%	18.00 (9)	52.00 (26)	34.00 (17)	58.00 (29)	40.50 (81)	
(c)	More than 12 hrs	%	28.00 (14)	16.00 (8)	22.00 (11)	20.00 (10)	21.50 (43)	
9	**Breeding service after calving**							
(a)	Within 3 months	%	20.00 (10)	34.00 (17)	32.00 (16)	16.00 (8)	25.50 (51)	26.22**
(b)	Within 3–5 months	%	22.00 (11)	22.00 (11)	52.00 (26)	28.00 (14)	31.00 (62)	
(c)	More than 5 months	%	58.00 (29)	44.00 (22)	16.00 (8)	56.00 (28)	43.50 (87)	
10	**Calving interval**							
(a)	Within 12–15 months	%	74.00 (37)	90.00 (45)	88.00 (44)	78.00 (39)	82.50 (165)	6.199 NS
(b)	More than 15 months	%	26.00 (13)	10.00 (5)	12.00 (6)	22.00 (11)	17.50 (35)	

Note: Values in parentheses indicate **frequency**. Significant at **P < 0.05;** ** Significant at **P < 0.01;** NS = **Non-significant.**

veterinary doctors result of this discussion show in Fig. 6. The similar study founded by Sabapara *et al.* (2015a), Yadav *et al.* (2016) and Prajapati *et al.* (2017).

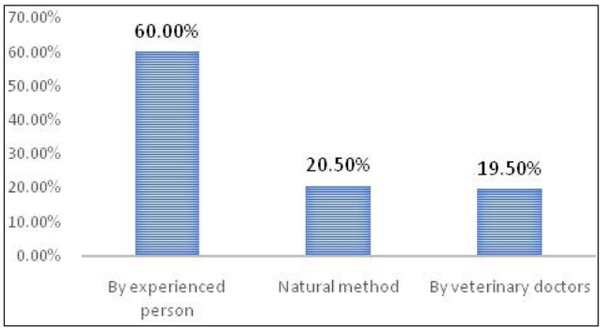

Fig. 6: Adoption of calving treatment by Farmers

Treatment of Anoestrus/Repeaters

There was a non significant association between anoestrus/repeaters treatments and blocks ($\chi^2 = 4.464$)) data shown in table 1. The overall highest 84.00 per cent of farmers followed the treatments for anoestrus or repeaters in cattle and buffaloes by the experienced persons, which followed by 16.00 per cent farmer did not attain the treatment for the anoestrus/repeaters. The maximum farmers from Maitha block 22.50 per cent and least from Rasulabad block 19.00 per cent farmers attended the treatments of anoestrus by the experienced person, whereas the maximum from Rasulabad block 24.00 per cent and least from Derapur block 10.00 per cent farmers were did not attained the treatments for anoestrus of their animals by the experienced persons the result of this discussion shown in the Fig. 7. The similar study was also proposed by Mulgu *et al.* (2019).

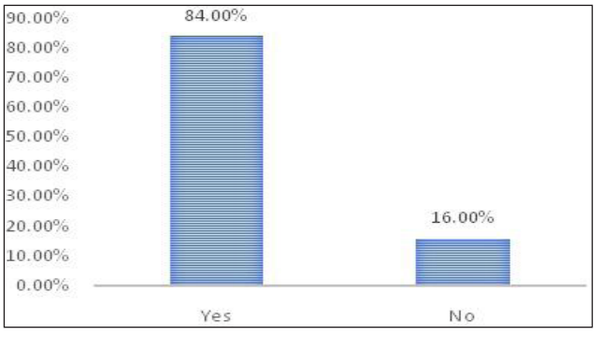

Fig. 7: Heat Detection Approaches by Farmers

Treatments for the Expulsion of Placenta

the highly significant association between treatments for expulsion of placenta and animals in blocks ($\chi^2 = 21.614$)) data shown in table 1. The overall highest 40.50 per cent of respondents were facilitated treatments for placenta expulsion of cattle and buffaloes within (10 hrs), who were followed by 38.00 per cent farmers treatments (within 4-6 hrs), and 21.50 per cent farmers, were treated in (more than 12 hrs). The maximum from Rasulabad block 58.00 per cent and least from Maitha block 18.00 per cent farmers expulsion of placenta treatments (within 10 hrs), and maximum from 54.00 per cent from Maitha block and least from Rasulabad block 22.00 per cent farmers were treatments of placenta (within 4-6 hrs) their animals, the maximum farmers from Maitha block 28.00 per cent and least from Akbarpur block 16.00 per cent farmers placenta treatments as (more than 12 hrs) result of this discussion show in Fig. 8. The similar study founded by Sabapara *et al.* (2016).

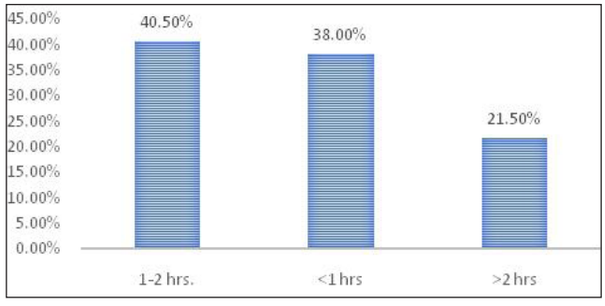

Fig. 8: Treatments for the Expulsion of Placenta by Farmers

Post Calving Breeding Services

The time should be provided for resting of female as adoption of further breeding services, there was a highly significant association between post calving breeding services adoption in selected blocks ($\chi^2 = 26.22$) data shown in table 1. The overall highest 43.50 per cent of farmers were mated the cows and buffaloes in more than 5 month after calving of cow and buffaloes, which was followed by 31.00 per cent farmers, were selected for calving within 3-5 month of their cow and buffaloes, while remaining 25.50 per cent farmers accept the mating within three months of the calving of dairy animals. The maximum from Maitha block 58.00 per cent and least

from Derapur block 16.00 per cent farmers used as breed purpose of their animal more than 5 month after calving of cattle and buffaloes, the maximum farmers from Derapur block 52.00 per cent and least from Maitha and Akbarpur block 22.00 per cent farmers used as breeding purpose after calving within 3-5 month of their cattle and buffaloes, and the maximum from 34.00 per cent from Akbarpur block and least from Rasulabad block 16.00 per cent farmers were used breeding purpose after the calving of dairy animals result of this discussion shown in the Fig. 9, this Study was supported by Meheshwari *et al*. (2018).

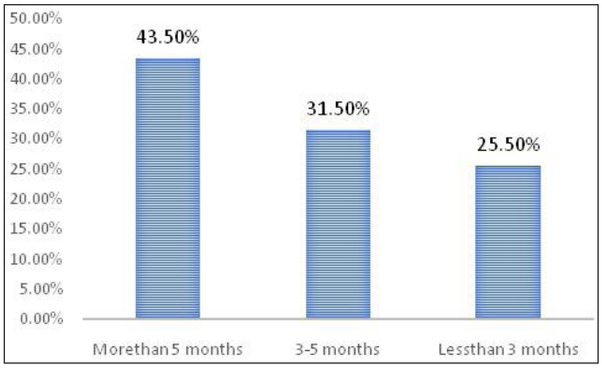

Fig. 9: Adoption of breeding after post calving

Calving Interval

The calving intervals is the gap of two parturition for recovering of stress, the result from dairy farmers of district represented a non-significant association between calving interval of dairy animals in selected blocks (χ^2 = 6.199) data shown in table 1. The overall highest 82.50 per cent of respondents were accepting the time of calving interval within 12-15 month for the cattle and buffaloes, which was followed by 17.50 per cent farmer time for the calving interval more than 15 month for the cattle and buffaloes. The maximum from Maitha block 74.00 per cent and least from Rasulabad block 19.50 per cent farmers time of calving interval within 12-15 month for the cattle and buffaloes, whereas the maximum from 26.00 per cent from Maitha block and least from Akbarpur block 10.00 per cent farmers followed the time for the calving interval more than 15 month for their animal's result of this discussion show in Fig. 10. The similar study was founded by Singh *et al.* (2021).

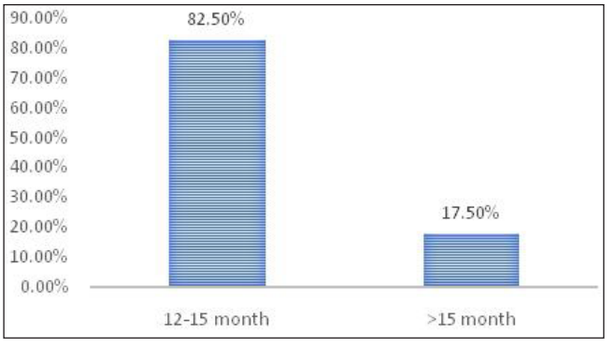

Fig. 10: Time Period Gap Adoption for next Calving by Farmers

GENERATIVE AI DECLARATION

The author(s) confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI. The authors developed and verified all scientific content, data analysis, interpretation of results, and conclusions. The authors take full responsibility for the accuracy, integrity, and originality of the work presented, and no AI tool was listed as an author.

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