

**Study on knowledge and adoption of practices during
transition period of dairy animals**



**THESIS SUBMITTED FOR PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE DEGREE**

OF

MASTER OF VETERINARY SCIENCE

IN

**VETERINARY & ANIMAL HUSBANDRY EXTENSION
EDUCATION**

BY

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(2022)

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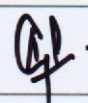
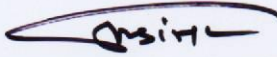
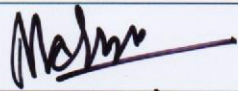
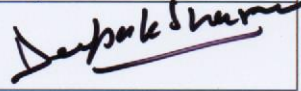
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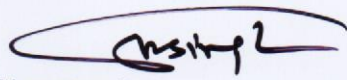
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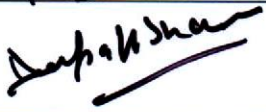
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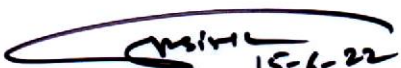
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**Veterinary & Animal Husbandry
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ABBREVIATIONS

%	:	Percentage
&	:	And
/	:	Per
<	:	Less than
>	:	Greater than
AI	:	Artificial Insemination
F	:	Frequency
FAO	:	Food and Agriculture Organization
GDP	:	Gross Domestic Product
Gm	:	Gram
GOI	:	Government of India
Govt.	:	Government
n	:	No. of observation
NDDB	:	Nation Dairy Development Board
PRA	:	Participatory Rural Appraisal
RBQ	:	Rank Bases Quotient
Sq. Km.	:	Square Kilometer
Std.	:	Standard Deviation
UP	:	Uttar Pradesh
WMS	:	Weighted Mean Score

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ACKNOWLEDGEMENTS

Whenever a journey reaches its climax, it is always a pleasure to look back at all the noble characters that had come in the way and made the expedition a fabulous one. On completion of my dissertation, I would like to share my feelings for those people without whom this would not have been possible.

I owe special debt of gratitude and honors to most respected mentor and my advisor **Dr. Amit Singh**, Assistant Professor, Department of Veterinary & Animal Husbandry Extension, College of Veterinary science and Animal Husbandry, U.P. Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, Mathura (U.P.), for his inspiring guidance, tender hearted approach, motivation, unstinted interest, incessant help, technical guidance and constant encouragement.

I wish to express special regards and thankful to **Dr. Sanjeev Kumar Singh**, Professor and Head; **Dr. Rashmi Katheria**, Assistant Professor, Department of Veterinary & Animal Husbandry Extension, College of Veterinary science and Animal Husbandry, DUVASU, Mathura.

I duly acknowledge my sincere thanks to my advisory committee members **Dr. Muneendra Kumar**, Assistant Professor, Department of Animal Nutrition and **Dr. Deepak Sharma**, Professor and Head, Department of Animal Genetics & Breeding (Dean PG nominee) for their valuable advice during my research work.

I am very thankful to **Dr. G. K. Singh**, Hon'ble Vice Chancellor, Prof. **Dr. Ajay Prakash**, Dean P.G.S., and Prof. **Dr. P. K. Shukla**, Dean of College of Veterinary Science & Animal Husbandry, DUVASU, Mathura for their technical and academic support for successful completion of the work.

The assistance provided by the non-teaching staff of the Extension department, Co.V.Sc & A.H. cannot be forgotten. So, I heartily thank **Mr. Govind Singh Bhandhari** for his technical support and **Mr. Damodar Singh** for his help and cooperation.

I would like to convey my most profound sense of gratitude and indebtedness to my parents **Mr. Murlidhar Lawale** and **Mrs. Manjushri Lawale** by whose grace I was able to reach this achievement.

On a personal note, I would like to thank my special one **Dr. Akash Raut** for his continuous support and tender attitude which I consider valuable in successful completion of my work. This journey became easier by his continuous motivation.

I am thankful to my seniors **Dr. Swati Tripathi, Dr. Saleema Ahmadi Quadri, Dr. Poonam Yadav, Dr. Bajrang Savare,** and my juniors **Dr. Sampada Bhoge and Dr. Sonika Verma** for their kind attitude and help during my research work.

I owe special thanks to the responding **farmers** of my study area without whose support and co-operation the work would not have been completed.

I would like to thank all the people who directly and indirectly supported me during my research work.

Last but by no means least, I am grateful to the grace of **Almighty**, who gave me courage and patience to complete this piece of work.

Mathura

Date..10/05/22



(Lawale Pranita Murlidhar)

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ABSTRACT

Animal husbandry plays a crucial role in the Indian economy by supplementing the family income, strengthening household nutritional security and generating gainful employment for millions. Though India is highest milk producing country in the world, the production potential of indigenous animal is less as compared to their population because of which there is large disparity exists in our country in terms of milk production. Therefore, improvement in the productivity of the dairy animals is the need of time for prevention of economic losses to the farmers. It is observed that production losses occur mostly due to the disorders occurring in transition period of dairy animal's i.e, between 3 weeks before and 3 weeks after parturition. So, it is of immense importance to assess the existing practices followed by the respondents and knowledge and adoption level of improved practices by them to minimize production losses. Present study was conducted in ten randomly selected villages of purposively selected Mathura district of Uttar Pradesh. Information was collected from ten randomly selected respondents from each village and thus total sample size was 100. Data was collected through pre-designed interview schedule and knowledge through knowledge test as per the objectives of the study and the results were analysed using suitable statistical tools. The study revealed that majority of the farmers were old age group, having middle to secondary level of education and having semi- medium to medium land holding. 48% farmers were having high experience dairy farming having large herd size (> 6 animals) and high milk production High (> 21 litres). No feeding standards were followed by majority (68.00%) of the respondents for feeding their animals and 32.00% respondents were using milk production as the criteria for feeding the animals. Proper disposal of placenta is not followed by 88.00% of the respondents while it is adopted by only 12.00% respondents. Vaccination for prevention of infectious diseases is followed by majority (60.00%) of the respondents. Only 24.00% of the respondents receive treatment for their animals from registered veterinary practitioner. The respondents were having highest knowledge about the calf management practices during transition period (87.50%) followed by general management practices (81.82%), healthcare practices (75.00%) and feeding management (61.11%). The overall extent of adoption was found to be 49.26% and for management practices, feeding practices, healthcare practices and breeding practices it was 46.86%, 53.20%, 46.00% and 51.00% respectively. Major constraints faced by the respondents were distant location of veterinary hospitals from remote villages, occurrence of repeat breeding in dairy animals, inadequate knowledge of diseases and their control measures as well as problem of disposal of old/ disabled animals.



Introduction

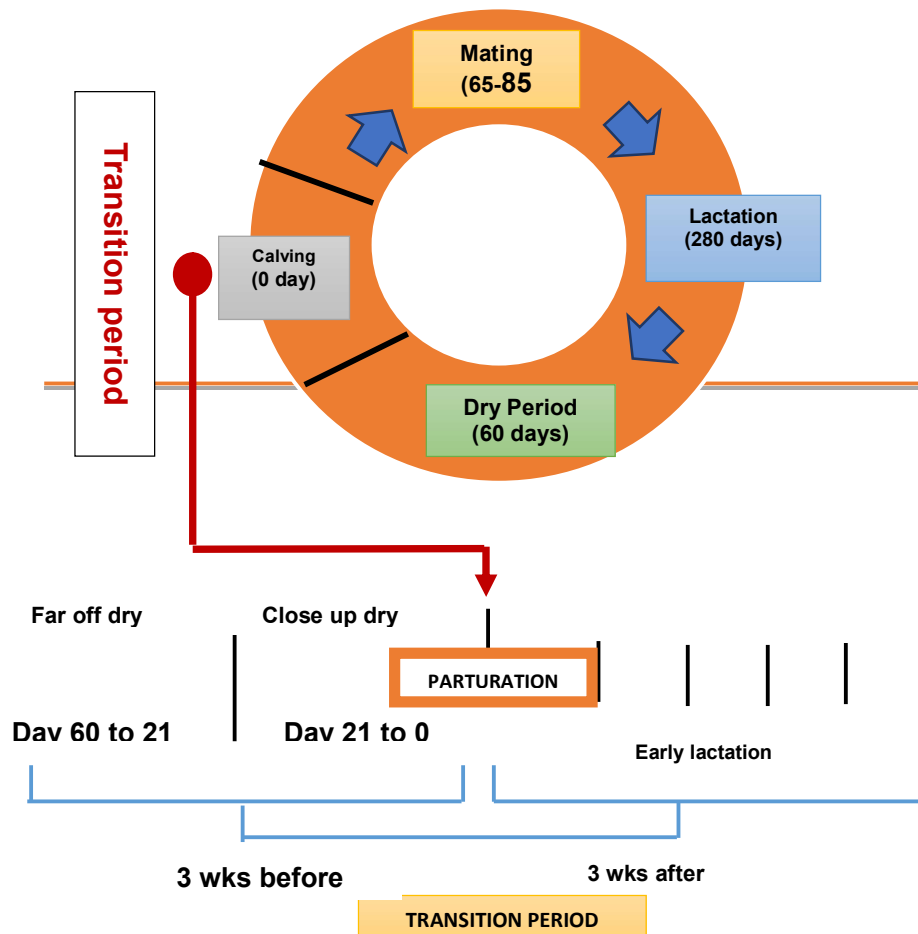
Chapter - I

Introduction

Agriculture has always been vital to India and livestock plays an important role in Indian economy. Animal husbandry plays a crucial role in the Indian economy by supplementing the family income, strengthening household nutritional security and generating gainful employment for 22.45 million people (Srivastava, 2016). Livestock sector contributes 5.3% of total Agriculture GDP and about 150 million people depend upon livestock for their livelihood. India is home for 536 million animals out of which 192.49 million are cattle and 109.85 million are buffaloes. So, nearly 56% of the total livestock are cattle and buffaloes (20th livestock census, 2019) and is the world largest producer of milk with an amount of 198.4 million tonnes of milk (NDDB,2019). Though India is highest milk producing country in the world, the production potential of our indigenous animal is less as compared to their population because of which large disparity exists in our country in terms of milk production. (Kale *et al.*, 2018). Improving the productivity of farm animals is one of the major challenges faced by country (Singh *et al.*, 2020). Considering the above facts there is a vast scope for increased productivity through improved management practices including breeding and calf rearing practices in order to get maximum profits (Singh *et al.*, 2012).

Milk production and associated economic returns from dairy animals depend on productive and reproductive performance of dairy animals. Reproductive performance was affected by season of calving, production, maturity, and reproductive disorders (Coleman *et al.*, 1985). On an average, dry matter intake decreases 32% in the three weeks prior to calving, with the majority of that decrease occurring in the final week before calving (Hayirli *et al.*, 2002). Although dry matter intake rises following calving, it lags behind milk production and causes negative energy balance in early lactation. Cows with poor intakes have extremely negative postpartum energy balances, increased blood ketones and non-esterified fatty acids (NEFA), and increased disease susceptibility (Grummer *et al.*, 2005). This is one of the reasons why reproductive disorders occur mostly during transition period of dairy animals. The transition period of a cow is generally defined as 3 weeks before calving

to 3 weeks after calving (Grummer, 1995). During this period, dairy cows are highly susceptible to metabolic and infectious disease; therefore, prior identification of disease may be especially useful at this time. Metabolic disorders are a key problem in the transition period of dairy cows and often appear before the onset of further health problems. It is the most challenging and critical period in relation to the dairy cow's health status during the lactation cycle. Major physiological, nutritional, metabolic, and immunological changes occur within this time frame as the production cycle of the cow shifts from a gestational nonlactating state to the onset of copious milk synthesis and secretion (Bell, 1995; Sordillo and Raphael, 2013). Dams experience oxidative stress in early lactation due to increased metabolic demand as well as pathogen challenges (Sordillo *et al.*,2009) which contributes to a pro-inflammatory state which in turn results in impaired immune defence (Sordillo and Mavangira,2014). Despite of the advancements made in the feeding practices to reduce the risk of metabolic diseases transition period puts forth many challenges to animal health. (EastridgeM.L.,2006).



The period is characterized by marked changes in the endocrine status and a reduction in feed intake (Grummer, 1995), resulting in a negative energy balance of varying duration and intensity. Concomitantly, endocrine immune suppression and environmental stressors such as group changes during the transition period make the dairy cows prone to develop infectious diseases (Mulligan and Doherty, 2008; Ingvarsten and Moyes, 2015). Uterine infection after calving can be costly to producers because uterine infection has been shown to impair reproductive performance (Opsomer *et al.*, 2000; Melendez *et al.*, 2004) and reduce milk yield (Rajala and Grohn, 1998). Requirements for glucose and metabolizable energy increase two- to three-fold from 21 days before to 21 days after parturition (Drackley, 2001). Metabolic disorders and health problems are common during this time and can easily erase the entire profit potential for an individual cow in that lactation (Drackley, 1999). Decreased reproductive performance leads to decreased production of the animals which in turn leads to economic losses. Proper nutrition and management during the transition period can improve lactation performance (Drackley, 1999).

The transition between late pregnancy and early lactation, from calving until a 3 to 4 week postpartum, is a high-risk period for the occurrence of the disease in the dairy cow (Mahmut *et al.*, 2009) which leads to severe economic losses. Due to the combination of the aforementioned factors centralized around parturition, the transition period is characterized by an elevated risk for metabolic as well as reproductive disorders which can cause reduction in production efficiency leading to severe economic losses (John Christy and Thirunavukkarasu, 2006). Increasing production of milk after calving places an enormous demand for glucose and minerals causing hypocalcaemia while at advanced gestation, more phosphorus and calcium are required for the developing foetus if supplementary phosphorus is not provided, thereby leading to hypo phosphataemia (Digraaskar *et al.*, 1991). Apart from these Dystocia, along with increased calves' mortality are the source of economic losses for bovine breeders which results in reduced fertility (De Maturana *et al.*, 2007), and reduced productivity (Lombard J., F. Garry *et al.*, 2006). When the incidence of retained placenta is high in the herd, then the fertility is reduced. This results in direct loss to the farmer by delayed calving and long calving interval which in turn leads to low milk production (Tucho and Ahmed, 2017).

The management practices constitute about 75-80 percent of total cost incurred on milk production in dairy business (Verma and Sastry, 1994). In India majority of the ruminants are reared by small, marginal and landless farmers and most of them do not follow general management practices (Tiwari *et al.*, 2009). Drying of the pregnant animals is still not practised by many farmers and dry cows get less attention and poor-quality feed because they are considered as nonworking or poor performers. Independent grouping of dry cows is readily not practised and they are grouped as low producers (Beever, 2006). Most of the livestock farmers are less educated and landless, therefore they depend on traditional knowledge for rearing of animals. The traditional system holds many good points from farmer's point of view and with the situations prevailing among farmers, there is a great demand for intervention of certain external system in terms of new technologies or innovation, which can increase the productivity and improve the farmer's income. Majority of the dairy farmers had started dairying as their family enterprise without undergoing any formal training. That is the reason why they lack the information about improved dairy management practices (Kavithaa *et al.*, 2020). Healthy herd management practices are not readily adopted by the farmers. This is mainly due to the non availability of veterinary professionals in the remote village areas, lack of knowledge of animal diseases, high cost of veterinary treatment and unawareness about the programmes launched by government departments (Singh and Gupta, 2015). The productive and reproductive traits of dairy animal have greater influence on the production potential of dairy animals. The poor productivity of animals is mainly due to poor production potential of dairy animals, inadequate nutrition as well as management practices including breeding and calf rearing practices (Ahirwar *et al.*, 2011). Overall lactation performance is highly influenced by improved management of dairy animals during transition period (Singh *et al.*, 2020). Energy assessment plays a vital role in determining current status of the dairy animals which is also helpful in indicating the need for adoption of suitable management practices (Singh, 2021). Considering the above facts there is a vast scope for increased productivity through improved management practices including breeding and calf rearing practices in order to get maximum profits (Singh *et al.*, 2012). Many reports stated that the metabolic and health problems that occur with increasing productivity. It is, therefore, necessary to elaborate nutritional strategies to facilitate the successful passage of the cow through this transition phase, while minimizing health problems and optimizing productivity

and profitability for the remainder of the ensuing lactation. Transition cow nutrition and management have received much attention in the research and popular-based literature in recent years because of the recognition of their importance in the productivity and health of cows. The improper management of transition females leads to decline in the income of dairy farmers. Most of the farmers are not aware of scientific animal management practices and adoption of improved dairy practices is prerequisite for development of dairy industry (Aulakh and Singh, 2015). Mineral mixture and concentrate feeding are least practised and are fed only after the recommendation by Veterinary doctor or any other person (Singh *et al.*, 2021). Incidence of repeat breeding is highest in indigenous cattle as compared to buffaloes and cross bred cattle (Roy and Meena, 2020). The economic losses, associated with poor peripartum management are reflected in suboptimal milk production, diminished reproductive performance, increased morbidity, mortality, treatment cost and involuntary culling (Reddy *et al.*, 2016). Therefore, management during transition period is determining productive and reproductive performance of dairy animals thus, affecting farmer's economy.

Development of scientific animal husbandry techniques has steadily increased productivity and wide spread diffusion of these techniques has eventually leads to enhanced growth in this sector. There should be whole range of services which were needed to enhance the capacity of dairy farmers to exploit the full potential of livestock production. These includes health and production services such as clinical care, preventive health and provision of pharmaceutical supplies, feed and fodder supply, artificial insemination, livestock research and extension, and other market services such as credit, livestock insurance etc. Apart from these issues the information about the scientific dairy farming is well awaited by the farmers. Therefore the information need of the farmers and rural masses involved in farming should be addressed for sustainable production. The continuing rapid development of approaches for quick dissemination of information is probably the biggest factor for change in extension which will facilitate and reinforces other changes. With the changing environment of food and agriculture sector including livestock, knowledge is an increasingly significant factor of production, processing and marketing in modern agriculture. The modern ICT tools along with social media platform can be widely used to address the information need of the farmers as these tools helps to

multiple fold dissemination of need based, specific and local information to the dairy farmers. So, the present study emphasizes on in- depth analysis of the existing practices followed by the dairy farmers as well as to ascertain the adoption of newly improved practices by them during transition period. With these aspects the present study on “**Study on knowledge and adoption of practices during transition period of dairy animals**” was planned.

1.1. The specific objectives of the study are-

- ❖ To assess the existing practices followed by the dairy farmers during transition period.
- ❖ To measure the knowledge and adoption level of respondents about transition period.
- ❖ To identify the constraints faced by farmers during transition period of dairy animals.
- ❖ To identify the scientific practices to be disseminated for farmers during transition period.

1.2. Need and scope of the study-

- ❖ The study would provide an insight into awareness of the dairy farmers about healthy herd management.
- ❖ The study emphasizes on finding out the farming practices which are being currently followed by the dairy farmers.
- ❖ The present study would be helpful in assessment of need of improved farming practices so as to reduce the losses during transition period.

1.3. Limitation of the study-

- ❖ The data collected is based upon the expressed responses of the livestock owners which may not be free from individual biases.
- ❖ The study has limitation regarding the of area of coverage.
- ❖ The study has the obvious limitation of available resources and time experienced by the student researcher.



Review

of

Literature

Chapter - 2

Review of literature

It is an essential preliminary task to be undertaken in a research study. It helps the researcher to acquaint with the available body of knowledge in the area of interest. Based on the objectives, the review of literature has been presented under the following subhead

1.1. Socio economic profile of the dairy farmers

Awadhesh *et al.*, (2021) observed that majority (46.97%) of the respondents belong to middle age group and 25.15% respondents had middle education category, 47.27% respondents had more than 25 year of experience in dairying and 57.27% respondents had medium family size and 56.67% respondents had medium level of income

Ashoo *et al.*, (2021) revealed that majority (58.33%) of the farmers belonged to middle age group (36-50 yrs) followed by the category of old age group ranging from (> 50 yrs) of age and young category which account for 34.84% and 5.83% respectively. He further state that 15.83 per cent were functionally literate, 8.33 per cent were primary level, 10.00 per cent were middle level, 25.83 per cent were educated up to secondary level only.

Kumar *et al.*, (2018) reveals that majority (72.00 %) of respondents belong to middle and young age category. It was seen that 74.00 percent of the population is literate which is higher than the average literacy rate (70.12%) of the district. It was further observed that that majority of respondent (77.00%) are having agriculture as major occupation while 11.0 percent have taken dairy farming as their main occupation. They possess a rich experience in dairy production as majority of them is having more than 18 year of experience in dairy farming.

Dabhi *et al.* (2018) in Surat district of South Gujarat reported that most of the crossbred cattle owners (66.66 per cent) had medium level of experience in dairy farming. Nearly 60.83 per cent of the crossbred cattle owners belonged to medium annual income category followed by 21.66 and 17.50 per cent to low and high annual income categories, respectively.

Kord (2020) in peri urban area of Aligarh city stated that about 48.51 percent of respondent involved in dairy farming belong to marginal and small farmers with less than one hectare and one to three hectares of land respectively.

Sumanpreet *et al.* (2017) in the state of Punjab found that most (49.37%) of the respondents were having small (> 5 animals) herd size and around 38.75% household were producing less than fifteen liters of milk/day.

Mahesh *et al.* (2020) stated that majority of farmers (80%) having local cattle with small to medium herd size and large number of farmers belong to low milk production and getting low milk yield from local and cross breed in Yadgir district of Kalyana Karnataka region.

Lohakare *et al.* (2013) indicated that Majority (63.81%) of the cattle owners were belonging to middle age, 18.57 percent were of old age group and 17.62 percent of respondent were belonging to young age group. They also reported that majority (74.76%) of dairy farmers had medium level of milk sale i.e., upto 0.88 to 12.12 liters per day followed by respondents with high (14.29%) and low (10.95%) milk sale.

Panchabhai *et al.* (2017) reported that majority of the dairy farmers (68.00%) belonged to middle age group and it was found that 38.50, 20.50 and 20 per cent of the respondents were educated upto high school followed by middle school and primary school level, respectively, while 3.50 per cent of the respondents had education up to graduation level.

Sabapara *et al.* (2016) indicated that majority of the respondents were falling under marginal to small categories farmers with small herd size. They also stated that herd size of dairy animal owners had significant positive correlation with adoption of improved dairy husbandry practices.

Gopi *et al.* (2017) observed that more than three-fifth (64.16 per cent) of the farmers had high dairy farming experience, whereas 24.17 per cent and 11.67 per cent had low and medium level of dairy farming experiences respectively.

Patil *et al.* (2009) in Nagpur district of Maharashtra studied the co-relation between socio-economic variables of the respondents which confirmed that variables like education (0.437), herd size (0.486), annual income (0.445), daily milk production

(0.583), daily milk sale (0.486), social participation (0.500) and the knowledge (0.634) were significantly and positively co-related with the training needs.

Gangasagare and Karanjkar (2009) stated that possessing of land (landless or landholder) for dairying has no effect on the lactation milk yield. The landless dairymen can equally contribute with dairymen having (large) land.

Gupta *et al.* (2014) observed that 46% of livestock owners in West Bengal were landless followed by Jharkhand (18%) and eastern UP (10%). Only 2, 4 and 4% of livestock owners in Assam, Odisha and Chhattisgarh, respectively, were landless. However, they further stated that 78% farmers in Odisha, 74% farmers in Bihar and 70% farmers in eastern UP owned more than 0.5 ha of land.

1.2. Information source of respondents

Kankarne *et al.* (2017) observed that nearly 71.75% of the respondents were belonging to the category of utilizing low sources of information while only 9% were falling into the category of utilizing high source of information.

Mahesh *et al.* (2020) indicated that more than half (54.00 %) of the farmers belonged to medium extension contact. Whereas, 34.00 per cent of them belonged to low extension contact and only 11.00 per cent were had high extension contact.

Lohakare *et al.* (2013) found that majority (80.96%) of cattle owners were belonging to the category of utilizing medium source of information, (13.81%) of respondents were utilizing high information sources while very few (5.23%) of respondents were utilizing low information sources in Vidarbha region of Maharashtra.

Rahman and Gupta (2015) proved that Majority (52%) of the dairy farmers were possessing medium extension contact followed by the ones having low extension contacts (32%) and high extension contacts (16%).

Gopi *et al.* (2017) observed that more than three-fourth (78.33 per cent) of the farmers in Tamil Nadu had membership in organisation outside their village and they were going to nearby town to meet officials to seek information related to farming activities.

Nimbalkar *et al.* (2020) 70.83% of the respondents were belonging to the category of medium extension contacts followed while 19.17% and 10.00% were belonging to the category of high and low extension contacts respectively.

1.3. Transition period and related disorders

Grummer (1995) defined transition period as time frame from 3 weeks before calving to 3 weeks after calving.

Drackley (1999) stated that important physiological changes occurring during this period are the decrease in dry matter intake around parturition and the sudden increase in nutrients, as a result of these remarkable changes, most of the infectious diseases and metabolic disorders occur during this time.

Singh (2020) indicated that the transition period constitutes a turning point in the productive cycle of the cow since it imposes a number of abrupt changes on the cow which are in 'physiological transit' from one lactation to the subsequent lactations and hence it requires proper management for successful dairy farming.

Reddy *et al.* (2016) mentioned that the management intervention for safe and efficient transition period includes protection against infectious agents, improvement of feed intake, prevention of over conditioning of animal, supply of specific nutrient factors and protection against environment and management stress.

Ahmad *et al.*, (2015) revealed that dry cow therapy is the treatment of cows at the end of lactation with a long-acting antibiotic preparation with or without a teat sealant. This is to treat for any intra-mammary infections contracted during lactation and provides protection against new infections during the dry period.

Razzaghi *et al.*, (2012) stated that feeding negative Dietary Cation Anion Diets (DCAD) in late gestation period and high DCAD in early lactation is effective in minimizing the occurrence of milk fever in dairy animals.

Hayirli *et al.*, (2002) concluded that dry matter intake decreases 32% in the three weeks prior to calving with the majority of that decrease occurring in final week before calving.

Digraskar *et al.* (1991) indicated that poor intake results in negative energy balances, increased blood ketones & non esterified fatty acids (NEFA) & increased disease susceptibility.

Varas *et al.* (2015) mentioned that calcium concentration is significantly lowered in first week after parturition in cows suffering from the severe metritis and in second week after parturition in cows who are suffering from severe mastitis.

Mezzetti *et al.* (2021) stated that dairy cows develop immune dysfunctions in transition phase which cause suppression of the immune system which in turn effects into a low-responsive state in polymorpho nuclear cells (PMN) and lymphocytes which starts at about 2–3 weeks before calving, and reach to the lowest efficiencies between the time of calving and two days after calving.

1.4. Management practices during transition period

Devasena *et al.*, (2015) that most of the farmers were feeding single or two concentrate ingredients independently or in combination (45%) and few farmers were using commercially available concentrate mixtures (15%). Inclusion of common salt was not a regular practice in the cattle feed while mineral mixture was used occasionally.

Ranjana *et al.*,(2016), also stated that majority of the respondent shad always adopted cleaning of udder before milking and use of full hand method of milking while sometimes adopted washing the buffalo before milking. Proper disposal of placenta is not followed by 88.00% of the respondents while it is adopted by only 12.00% respondents. Washing of hind quarter after calving was performed by respondents.

Ghanshyam and Vishnubhai, (2021) revealed that majority (98%) of the respondents washed buffalo's hind quarters after drop of placenta. He further revealed that majority (80%) of dairy animal's keepers adopted various practices like dusting, spraying and injectable drugs for control of ecto-parasites in study areas. Vaccination for prevention of infectious diseases is followed by majority (60.00%) of the respondents.

Rathore *et al.* (2010) who found that only 18.5% of the respondents followed practice to washed cow's hind quarters after drop of placenta.

Ghanshyam and Vishnubhai (2021) that only 38% respondents treated their sick buffaloes by qualified veterinarians. This might be due to distance location of hospitals in the study area. Practice of isolation of sick animals is also not followed by majority of farmers due to lack of awareness of the buffalo keepers regarding isolation and segregation process to be followed in order to control the spread of contagious diseases in the herd or may be due to lack of proper availability of space.

Sabapara *et al.* (2013) observed in Gujarat that the knowledge about different aspect of improved dairy husbandry practices of feeding, breeding, management and healthcare were 50.88, 80.93, 55.60 and 63.57, respectively.

Nimbalkar *et al.* (2020) found out that nearly 12.05% of the dairy animals in the state of Punjab were suffering with subclinical mastitis.

According to Van Saun and Sniffen (2014), out of the total periparturient metabolic diseases, subclinical metritis and subclinical ketosis are having high rate of incidence as 37-74% and 26-55% respectively.

1.5. Ethno veterinary practices

Chand *et al.* (2021) revealed that majority of farmers fed boiled methi grain to dairy animals in morning (empty stomach) at the rate of one kg for five days for correcting the case of late maturity and anoestrus. At the same time a handsome number of farmers were feeding bajara with jiggery, and bajara with guar.

Sharma *et al.* (2019) stated that for treatment of repeat breeding some livestock owners fed 250 gm overnight soaked ajwain (*Trachyspermum ammi*) to animal for five days. Along with this, for treatment of anoestrus 10 gm seed of kayfal (*Myrica nagi*) fed to animal for continuous three days.

Parmar J. (1999) stated that 100gm powder of root or bark of the *Convolvulus microphyllus* Sieber (Morning glory) mixed with 300 ml of water and boiled for 10 min then this concoction is filtered and then cooled, fed the animals once a day for 3 days.

Singh *et al.* (2002) identified that Feeding of 250-300 gm of cactus (acial portion) mixed with 200 gm buttermilk and flour of singhara (Water Chestnut) to the animals once daily can use for cervico-vaginal prolapse during pregnancy.

Ali (1999) revealed that Fruit juice of *Citrus medica* (Galgal or Purak) is mixed with powdered fruits of *Cuminum cyminum* (Jeera), paste of the whole plant of *Gomphrena serrata* and *Trichodesma indicum* Lehm. (Indian borage) is given for prolapse of uterus in cows and buffaloes.

Khan *et al.* (2021) reported that about 1–2 kg of roots of *Dipsacus inermis* (Pilha) are mashed and cooked in water and given orally to expel placenta as post-delivery treatment in cattle. This has shown quick results and placenta is removed. Cooked roots of *Dipsacus inermis* (Pilha) are also used to cure prolapse of uterus.

Sarswat and Purohit (2020) stated that livestock owners used *Myrtus communis* for the treatment of Prolapse of uterus and *Nigella sativa*, *Pedaliium murex* for the treatment of puerperal and uterine diseases.

1.6.Incidences of diseases during transition period

Goff and Horst (1997) stated that major disease incidences (mastitis, ketosis, digestive disorders, and lameness) occur in the first 10 days after parturition.

LeBlanc *et al.* (2006) revealed that nearly 75% of disease incidences in adult dairy cows significantly occur in the first month after calving.

Meena (2009) after completing the study in Haryana state observed that incidence of repeat breeding, anoestrous, retained placenta, metritis/endometritis, Dystocia, genital prolapse, uterine torsion and cystic ovaries are 68.66%, 28.66%, 26.33%, 23.66%, 17.00%, 16.00%, 15% and 10.66% respectively.

Dharmesh *et al.* (2012) in Uttar Pradesh carried out the study and revealed that the incidence of retention of placenta was more in buffaloes (8.46%) followed by cross breed (2.13%). The incidence of prolapse in Indore district of Madhya Pradesh was 1.96 and 2.20 percent in crossbreed and Buffalo.

Madhu *et al.* (2013) revealed that occurrence of pre partum complications was 12.83 percent, whereas the occurrence of postpartum complications was 45.36 percent. It was further reported that occurrences were maximum in summer (prepartum 39.60% and postpartum 51.98%) and minimum in spring (prepartum 8.60% and Postpartum 30.96%).

Jaspreet *et al.* (2006) in the state of Punjab observed that major reproductive disorders in buffaloes was anoestrus having incidence of 31.98 percent followed by repeat breeding (14.67%), retention of foetal membranes (14.64%), uterine infections (14.28%), prolapse (9.29%) and dystocia (5.86%).

Subhash *et al.* (2009) observed that the cumulative incidence of retained placenta was 5.95 percent. It was more in case of cross breed (8.11%), followed by buffalo (5.77%) and indigenous cow (4.94%).

Rabbani *et al.* (2010) stated that the overall prevalence of reproductive disorders in buffaloes was recorded as 46.18 percent. Among all the reproductive disorders, repeat breeding showed the highest prevalence (15.69%), followed by anoestrus (9.74%), genital prolapse (7.73%), abortion (5.99%), retained placenta (2.58%), uterine torsion (2.39%) and dystocia (2.06%).

Nimbalkar *et al.* (2020) found out that nearly 12.05% of the dairy animals in the state of Punjab were suffering with subclinical mastitis.

Roy and Meena (2020) observed in Haryana that incidence of repeat breeding was highest in indigenous cattle (35.18%) as compared to buffaloes (11.35%) and cross bred cattle (8.91%).

According to Van Saun and Sniffen (2014), out of the total periparturient metabolic diseases, subclinical metritis and subclinical ketosis are having high rate of incidence as 37-74% and 26-55% respectively.

Inderpreet *et al.* (2011) reported that incidence of dystocia was 14.58 and 6.26 per cent in buffaloes and cows respectively. They also reported that about 25.04 and 15.38 per cent buffaloes and cows suffered from retention of placenta. Along with this, abnormal post-partum uterine discharge was observed in 22.22 and 13.87 per cent of buffaloes and cows, respectively.

Deka *et al.* (2021) reported that the occurrence rate of repeat breeding is higher in the farms located in urban area (41.8%) than rural area (28.7%) also it is higher in stall fed animals (52.2%) than partly stallfed animals (8.2%). They also reported that rate

of abortion and retained placenta was highest i.e., 56% and 50% respectively in large farms (more than 10 animals) as compared to small and medium farms.

Meena and Malik (2009) in Karnal district of Haryana reported that the rates of occurrence of various reproductive disorders were 68.66% for repeat breeding, 28.66% for anoestrus, 26.33% for retained placenta, 23.66 for metritis, 17% for dystocia and 16% for vaginal/uterine prolapse.

Maruf *et al.* (2014) in Bangladesh proved that prevalence of reproductive disorders was 23% in total animal population. Among the diseases, anoestrus 5.1%, repeat breeder 3.7%, metritis 4.4%, retained placenta 4.6%, dystocia 0.97% and. They reported that Anoestrus was most important cause of infertility of cows in their study area.

Patel and Ponnusamy (2019) in Karnal district of Haryana reported that repeat breeding, anestrus and retention of fetal membrane were the major reproductive problems of dairy animals as perceived by 46.67, 36.67 and 28.33 per cent of respondents respectively.

1.7.Economic losses to the farmers during transition period

Meena and Malik (2009) stated that in Indian subcontinent, extreme climates affect the reproductive efficiency. Average dairy herd's fertility is declining with increased culling due to repeat breeding which is the major factor contributing to the economic losses along with the loss of milk production.

Thirunavukkarasu *et al.* (2010) reported that the estimated economic loss due to mastitis per affected cow and buffalo was Rs.1068 and Rs.665.

Inderpreet *et al.* (2011) stated that the death of one milch animal during October to March, 2010 caused a capital loss of Rs. 93000 to the farmers of Punjab.

Deka *et al.* (2021) reported that abortion in single animal causes the losses of nearly 24,436 INR and 15,958 INR in case of indigenous and crossbred animal respectively in Assam and Bihar.

Fareed *et al.* (2017) observed that abortion and repeat breeding causes the losses of 1500 Pak rupees each behind individual animal to the dairy farmers in Karachi district of Pakistan.

Cariappa *et al.* (2021) stated that total economic losses due to Milk fever in Haryana were estimated at ₹ 999.9 crores with ₹ 914.2 crores in buffaloes alone.

Sinha *et al.* (2014) indicated that that the average losses due to mastitis in dairy animals were estimated to be INR1390 per lactation for each animal, among which around 49% was owing to loss of value from milk and 37% on account of veterinary expenses. Also, the cost of treating an animal was estimated to be INR509 which includes cost of medicine (31.10%) and services (5.47%).

Singh *et al.* (2014) estimated that total economic losses due to mastitis were INR 5210 in ND cattle, INR 36795 in CB cattle and INR 24175 in buffaloes in Purvanchal region of Uttar Pradesh.

Senthilkumar *et al.* (2015) indicated that the loss due to ketosis per affected cow was estimated to be Rs. 1481.32 in buffaloes including the cost of medicine, veterinary services, cost of supplements, loss towards reduction in milk yield and additional labour cost. Thus, the total economic losses in Tamil Nadu due to ketosis would be Rs. 21.33 crores and Rs. 2.64 crores in cows and buffaloes, respectively.

According to Kashoma and Ngou (2021), the estimated average financial loss due to RFM per cow in a lactation was 364,133.00 Tanzanian shillings (157.00 USD \$) with major losses attributable to reduced milk yield (95.43%) than treatment costs (4.51%) in Tanzania.

1.8. Productive and reproductive parameters of dairy animals

Rahman and Gupta (2015) stated that good quality animals in the farms coupled with better feeding and management practices resulted in better productive and reproductive performance of the animals.

Meena *et al.* (2016) observed that the average daily milk yield of buffaloes, cross breed cattle indigenous cattle was 6.01 ± 0.5 , 5.79 ± 0.56 , and 5.45 ± 0.61

litre/day/animal respectively and the overall average daily milk yield was estimated to be 5.75 ± 0.65 litre/day/animal.

Patel *et al.* (2020) indicated that lactation lengths of indigenous cow, crossbred cow and buffaloes in Bhiwani district of Haryana were 250.71 ± 18.46 , 215.63 ± 31.82 , 242.8 ± 30.33 respectively.

Kale *et al.* (2018) mentioned that average lactation length of buffaloes, crossbred cows and indigenous cows was 264.38 ± 13.39 , 278.21 ± 10 and 265.56 ± 11.53 respectively. Furthermore, average dry period of buffalos was 184.06 ± 16.56 , for crossbred cows it was 113.07 ± 20.22 and for indigenous cows it was 130.50 ± 14.66 in Maharashtra state.

Meena *et al.* (2015) revealed that lactation milk yield of Buffalo, Crossbred cow, Indigenous cow were 1587.60 ± 113 , 2091.35 ± 145 and 964.65 ± 98 litre/ animal respectively. They further revealed that average peak milk yield of Buffalo, Crossbred cow, Indigenous cow, were 8.56 ± 0.85 , 10.42 ± 1.42 and 5.51 ± 0.53 litre/animals respectively in Faizabad district of Uttar Pradesh.

Manjusha *et al.* (2016) observed that the age at first calving of crossbred cow, buffalo and indigenous cow were 924.34 ± 61.9 , 1408 ± 128.85 and 1090 ± 192 days/ animal respectively in Karnal district of Haryana.

Roy *et al.* (2020) reported that the calving interval of Siri-pure and Siri-graded cattle was 463.67 ± 3.40 days 452.71 ± 2.79 days respectively. However, number of services per conception were 1.30 ± 0.06 and 1.29 ± 0.05 for Siri-pure and Siri-graded cattle respectively.

Yadav *et al.* (2020) revealed that more than 82 per cent of Murrah buffaloes had <120 days as service period whereas 8.4 & 8.7 per cent of buffaloes fell under medium (121-140 days) and a long service period categories (>141 days) in Jind district which comes under Murrah buffalo breeding tract in Haryana.

Sattar *et al.* (2005) at the Livestock Experiment Station, Bhunikey Pakistan indicated that average age at maturity in Holstein Friesian heifers was 652.70 ± 6.98 days,

ranging from 356 to 1077 days. Furthermore, their average age at first calving was 987.87 ± 9.81 days, ranging from 701 to 1483 days.

Sinha *et al.* (2009) observed that age at first calving in cattle and buffaloes was 47.5 ± 1.95 months and 56.53 ± 1.20 months as well as their calving interval was 18.0 ± 1.09 months and 16.24 ± 0.53 months respectively. Also, the service period for cattle and buffaloes was 9.35 ± 1.10 6.27 ± 0.50 respectively in rural areas of Bareilly district.

Jamal *et al.* (2018) stated that age at first calving in Murrah buffaloes at Dairy cattle Breeding Division of NDRI, Karnal was 1398.67 ± 7.2 days. They further stated that service period for these buffaloes was 147.85 ± 2.12 days.

1.9. Knowledge level of dairy farmers about transition period

Sharma *et al.* (2009) revealed that in the state of Haryana that there is significant relation at 1% level of probability between education and knowledge level of dairy farmers.

Sabapara *et al.* (2013) observed in Gujarat that the knowledge indices of different aspect of improved dairy husbandry practices of feeding, breeding, management and healthcare were 50.88, 80.93, 55.60 and 63.57, respectively and overall knowledge index of improved dairy husbandry practices were 62.83%

Sarita *et al.* (2017) conducted a study in Haryana and observed that 52.8 per cent of dairy farmers didn't know that aborted foetus and discharge should not be handled with bare hands.

Jiji and Vijayan (2012) in Kerala stated that half of the respondents (50%) of their study had medium knowledge of cattle farming. More number of respondents fell in the low knowledge category (32.14%) than the high (17.86%).

Meena (2012) studied in the Haryana state and observed that majority (74.00%) of farmers had medium level of Knowledge about reproductive traits. Farmers had highest knowledge (65.33%) about Gestation period of cattle and buffalo followed by age of maturity (53.79%) and had less knowledge (46.33%) about days required after

conception for pregnancy diagnosis. The overall knowledge about reproductive traits was 59.54 percent.

Subhash (2011) revealed that farmers were having highest knowledge about abortion (78.98%) followed by Repeat breeding (71.44 %), anoestrus (70.56%), late maturity (68.08%), retention of placenta (57.85%), dystocia (52.94%) and were having least knowledge about Prolapse (47.06%).

Panchabhai *et al.* (2017) in Maharashtra found that 72.00 per cent respondent had medium whereas 17.50 per cent had high and 10.50 per cent respondents possessed low knowledge level on animal husbandry practices.

Sabapara *et al.* (2013) during their research found that maximum extent of knowledge in dairy animal owners was in the area of breeding (80.93) followed by healthcare (63.57), general management (55.60) and feeding (50.88).

Kavithaa *et al.* (2020) stated that almost all (96.67 %) of dairy farmers in their study area possessed complete knowledge about colostrum feeding to newly born calf, followed by quantity of mineral mixture added in daily ration (81.67 %), importance of additional concentrate feed to pregnant cow/buffalo in the advanced stage of pregnancy (70.00 %). Along with this, knowledge regarding Symptoms of metabolic disease like Milk fever, Ketosis etc., and prevention of calf scour / navel ill was possessed by 75.00 per cent and 70.00 per cent of the respondents respectively.

Singh *et al.* (2013) observed that in breeding aspect, 62.50% of respondent have medium knowledge, followed by 30% of respondent had low knowledge and only 7.50% of respondent only had high knowledge on breeding.

Gunaseelan *et al.* (2018) in Thanjavur district of Tamil Nadu state proved that more than half of the dairy farmers in their area of research possessed medium level of knowledge in all components of improved dairy management practices. However, all of the large farmers had complete knowledge on the symptoms of heat in animals.

Sumanpreet *et al.* (2017) in Punjab state observed that about 45%, 46.88% and 31.88% of farmers dairy farmers in their study area had correct knowledge about the

vaccination against the diseases FMD, HS and Brucellosis, respectively while majority (63.75%) of dairy farmers did not know about zoonotic diseases.

Singh and Gupta (2015) stated that the knowledge level of respondents regarding housing management was highest among all the other aspects and knowledge level regarding cleanliness of the animals was lowest in Rajasthan state.

Patil *et al.* (2009) found that majority of the respondents in Nagpur district of Maharashtra state (78.67%) did not know the necessity for the separate housing of pregnant animal before 2 - 3 weeks prior to parturition.

Jadhav *et al.* (2021) in Gujrat state observed that dairy farmers had least knowledge level (21.56%) about various diseases transmitted due to ectoparasites.

Kavita *et al.* (2013) in Kurukshetra district of Haryana stated that the knowledge scores regarding vaccination of calves, mineral supplementation in the diet of calves and feeding of greens to the calves were lowest as compared to the knowledge scores other calf rearing practices and those were 52, 63 and 70 respectively.

1.10. Adoption of scientific practices during transition period

Surkar *et al.* (2014) conducted their study in Maharashtra and revealed that the adoption rate of newer technologies varies from place to place and region to region which is chiefly depends upon the socio- economic status of the community and community participation.

Manhas (2015) in Jammu district stated that adoption of scientific practices is low among large dairy farmers i.e. (30.77 per cent) than small i.e. (18.75 per cent) and medium i.e., (7.35 per cent) dairy farmers.

Sathiadhas (2003) in Kerala observed that extent of adoption of mastitis prevention measures is 33.33%.

Meena *et al.* (2012) studied in Rajasthan state and evaluated that feeding colostrum to new born calf is highly adopted management practice among all management practices.

Amit Singh *et al.* (2021) mineral mixture and concentrate feeding are least practised and are fed only after the recommendation by Veterinary doctor or any other person.

Surkar *et al.* (2014) observed that majority of the respondents (82.50%) are reluctant to keep milking area clean and its disinfection. Also, about 60.83 per cent respondents do not clean animals and their shed before milking.

Asiya and Girigan (2019) found out during their study that none of the respondents were milking their animals in separate and dry places. However, all respondents were regularly washing udder before milking.

Jadhav *et al.* (2021) indicated after their study in Vejalpur town of Gujarat that More than half of the dairy farmers (55.00%) had not adopted the practice of treatment of infected animal by a veterinarian.

Singh *et al.* (2010) in Haryana stated that landless dairy farmers had significantly higher adoption in health care as compared to other dairy farming practices like breeding, feeding and dairy management and minimum adoption of feeding practices as they were not growing green fodder of their own.

Yadav and Naagar (2021) in Bhilwara district of Rajasthan revealed that majority of the dairy farmers (85.8%) had adopted artificial insemination for breeding of their animals.

Sachan *et al.* (2016) in Uttar Pradesh stated that treatment of repeat breeding and anestrus cases by veterinarians was least adopted and burying dead animals after death by contagious disease was second least adopted with the adoption rate of only 2.50% and 3.33% respectively.

Quddus (2012) after his study stated that adoption of dairy technology is negatively associated with farmer's age group and farm size but positively associated with level of farmer's education and farming experience, household income and earning members.

Lohakare *et al.* (2013) indicated that with increase in age, there was co-responding decrease in adoption level of respondent about animal husbandry practices. On the other hand, higher is the milk marketed by cattle owners greater is the increased

annual dairy income which enable to farmers to adopt high-cost technologies. They also reported that utilization of information sources showed positive and highly significant relationship with the adoption of animal husbandry practices.

Panchabhai *et al.* (2017) reported that out of all the selected characteristics of dairy farmers, social participation exerted highest positive correlation coefficient ($P < 0.01$) with extent of adoption of animal husbandry practices. Variables like education, herd size and sources of information had positive significant relationship ($P < 0.05$) with extent of adoption whereas age, family size, annual income and risk orientation had positive non significant relationship with extent of adoption of animal husbandry practices.

1.11. Constraints faced by the respondents during transition period

Sabapara *et al.* (2012) conducted their study in Gujarat state and observed that the constraints faced by respondents related to the healthcare were high cost of veterinary medicine (80.50%) followed by problem of mastitis in crossbred cows (73.50%), inadequate knowledge of diseases and their control (50.50%), non-availability of services of veterinary doctor regularly (17%), non-availability of vaccine in time (6%) and distant location of veterinary hospital (3%).

Selvaraj *et al.* (2003) stated that inadequate knowledge of diseases and their control is the major constraint faced by dairy farmers (78.6%)

Chinnadurai *et al.*, (2002) revealed that the major constraints related to feeding of dairy animals are high cost of feed followed by non- availability of green fodder round the year and lack of knowledge of balanced ration.

Mohi and Bhatti (2006) conducted a study in state of Punjab and found that poor results of A.I. was the major constraint faced by the dairy farmers in adoption of improved breeding practices and high price of concentrates was the major constraint in adoption of improved feeding practices.

Surkar *et al.* (2014) found during their study that, poor knowledge about scientific animal husbandry practices and dairy farming was the most important constraint

faced by the dairy farmers in adoption of improved practices for quality milk production.

Sheikh *et al.* (2019) confirmed that most constraints perceived by the farmers in adoption of feeding and breeding practices were high cost of supplement feed/mineral mixture and repeat breeding problem in dairy animals respectively.

Patil *et al.* (2009) during their study in Vidarbha region of Maharashtra observed that majority of the dairy farmers i.e., 72.44% were facing the constraint of low milk production by local breeds. Along with this the second important constraint faced by them was non availability of green fodder during summer season.

Quddus (2012) observed that ill equipped AI centre and negligible services at AI centre was the constraint mostly faced by the farmers for adoption of improved breeding practices for dairy animals. Another important constraint faced by them was lack of knowledge about time of mating.

Patel *et al.* (2016) in Junagadh district of Gujrat found that lack of knowledge of improved breed of cattle/buffalo and lack of trained person for artificial insemination were the major issues of concern in adoption of the breeding practices by the farmers. They also reported that Unavailability of cheap and quality green fodder round the year was major constrain in adoption of recommended feeding practices.

Jagdish *et al.* (2021) in Sirsa and Hissar districts of Haryana stated that major constraints faced by the farmers were in the areas of scientific feeding and marketing of the dairy produce. Lack of credit facility for the purchase of feed and fodder, problems of repeat breeding, lack of veterinary medical store, non-availability of quality breeding bulls through village Panchayat and lack of minimum support price for milk along with the problem of milk transportation to the market were the major feeding, breeding, healthcare, institutional and marketing constraints respectively.

Shrey *et al.* (2015) in Parbhani district of Maharashtra revealed that main constraints faced by local cow, crossbreed cow and buffalo owner in milk production were low productivity, poor quality of bulls, low price for milk, lack of availability of credit, high cost of feeds and fodder, lack of AI and veterinary facility.

Meena *et al.* (2016) in Rohilkhand region of Uttar Pradesh identified the major constraints faced by the dairy farmers such as preference of natural service (91%), lack of good breedable bulls (88%) and lack of A.I. centre, ill equipped A.I. centre, lack of service at A.I. centre, distant location of veterinary hospital (86%).

Inderpreet *et al.* (2011) stated that the important constraint faced by the dairy farmers in central Punjab was high cost of feed and fodder followed by Low price of crossbred cow milk and Problem of disposal of old/disabled animal unfit for breeding.

Kavithaa *et al.* (2020) identified major constraints such as non-availability of green fodder round the year, distance to AI centre/Hospital, vulnerability of cross bred animals to diseases, lack of availability of labour, high cost of cross breed dairy animal, non-remunerative price for milk and lack of purchasing power of the farmers in the areas of feeding, breeding, health care, infrastructure, finance, marketing and socio-psychological constraints.

Meena and Malik (2009) found out that Lack of facility of veterinary doctor during night was the highest perceived constrain by the farmers of Karnal district in Haryana.

Patel and Ponnusamy (2019) in Haryana stated that poor Veterinary facilities during emergency hours, lack of quality bull at village level and poor conception rate with AI in dairy animals were the major constraints perceived by the dairy farmers.



Materials

and

Methods



Chapter -3

Materials and Methods

Materials and methods provide framework for the research exertion that helps in describing the various techniques and procedures used to accomplish the research programme. It helps the researcher to keep his work going in right and appropriate direction. It further helps in the interpretation of the findings. It has been organized under the following sections:

3.1.Locale of the study

3.2.Research Design and Sampling Procedure

3.3.Variables, their operationalization and measurements

3.4.Data collection

3.5.Statistical tools for data analysis

3.1.Locale of the study

The present study was undertaken in the state of Uttar Pradesh. The said state was purposively selected because of the following reasons:

- i. The state is having highest population of cattle and buffalo (67.8 million, which comprises about 16% share of whole country bovine population
- ii. The state being the highest produce of milk in country (30.5 million tonnes)
- iii. Familiarity with the locale and language.

3.1.1. Brief description of the study area

Uttar Pradesh, being one of the populated states in India, shares its borders with Nepal on the North, Uttarakhand on the northwest, Haryana on the west, Rajasthan on the southwest, Madhya Pradesh on the south and south- west and Bihar on the east. Situated between 23° 52' N and 31° 28' N latitudes and 77° 3' and 84° 39'E longitudes, this is the fourth largest state in the country. Uttar Pradesh has been one of the oldest states in the country and in every single way reflects the life and culture of India as a whole. Spread over an approximate area of 240000 Sq. km. the state has

many places of strategic and cultural significance. The state has a population of 199,812,341 of which male and female are 104,480,510 and 95,331,831 respectively (Uttar Pradesh Census 2011). The total population growth in this decade was 20.23 percent. The growth rate of the population of Uttar Pradesh is alarming among the highest growth rates in the country. The density of population in Uttar Pradesh is about 800 people per square kilometers which is way above the national average of about 380 and a major cause of concern. Out of total population of Uttar Pradesh, 22.27 per cent people live in urban areas. The total population of Uttar Pradesh state, around 77.73 percent lives in the villages of rural areas. In actual numbers, males and females were 80,992,995 and 74,324,283 respectively. The state is having 75 districts among which Mathura is one of the districts of religious importance.

3.1.2. Brief description of the selected district.

Mathura have the geographical area of 330.3 hectares out of which cultivable area is 284 hectares, forest area is 1.6 hectares, permanent pasture is 1.3 hectares and non-agricultural land is 39.6 hectares with major field crops potato, rapeseed, mustard and wheat. Mathura district falls in south west semi-arid zone and consists of ravenous saline, alkaline and water logged soil but mostly alluvial soils those are formed by the silt of Yamuna and Ganga canal, which are quite fertile whereas, the district is also having large number of water logged area and patches of usar soils, which are mainly found in Chhata, Goverdhan & Nandgaon blocks. The average rainfall of the district varies between 532-620 mm/ annum. The maximum temperature varies between 45-48 °c and the minimum temperature dips up to 2°c during winters. There are five tehsils in Mathura namely Mathura, Govardhan, Chhata, Mant and Mahavan. The district has ten blocks namely Baldeo, Chhata, Choumunha, Govardhan, Mant, Mathura, Nandgaon, Naujhil, Farah and Raya. Mathura have total area of 3340 square kilo meters consisting of 89 Nyayapanchayats, 479 Gram panchayats and 736 Revenue villages (Census, 2011). The total population of Mathura district is 2,547,184 in which 70.32 per cent is rural population and the literacy rate is 72.65%. Total livestock population of Mathura district is about 8.93 lakh.

3.2. Research design and sampling procedure

3.2.1. Research design

Ex post facto research design will be used for conducting the study since the variables chosen had already been occurred.

Figure 3.1: Map of Uttar Pradesh State

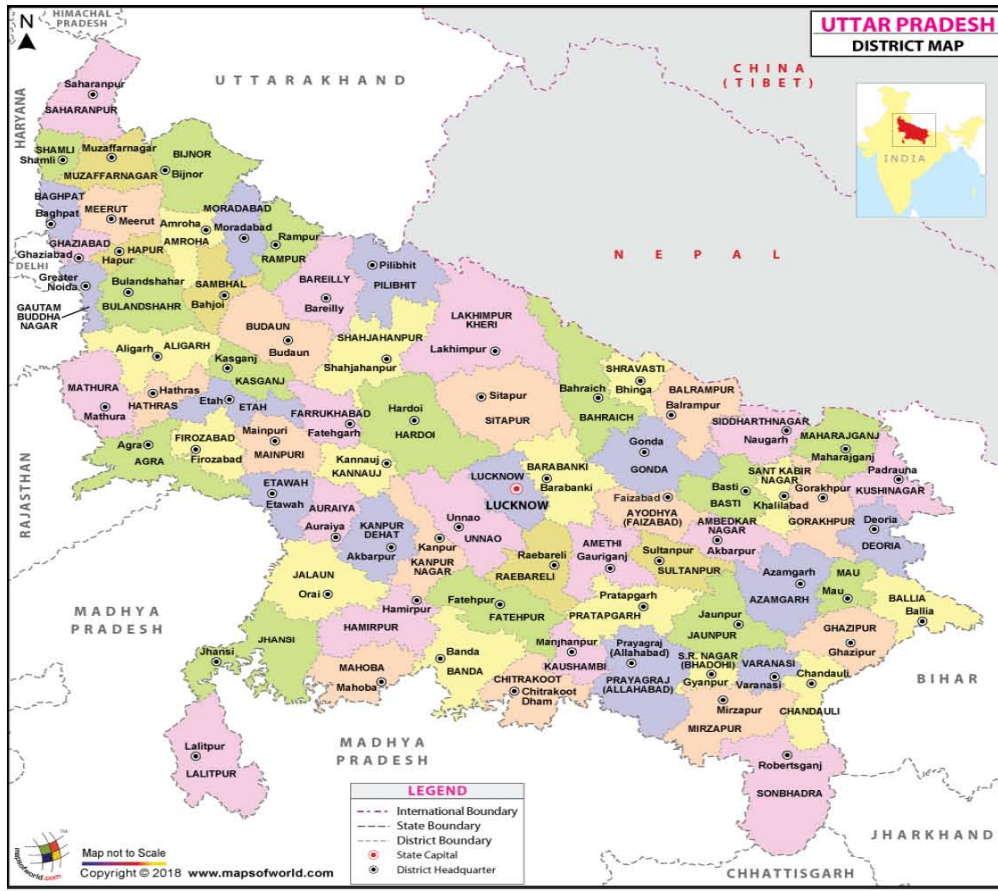


Figure 3.2: Map of Mathura District



3.2.2. Sampling procedure

3.2.2.1. Selection of District, Block and Villages

This study was conducted in purposively selected Mathura district of Uttar Pradesh. It is purposively selected for the following reasons:

- Mathura district had significant population of cattle and buffalo in the state.
- The investigator is familiar with the particular area and language. Thus, it was advantageous to opt for, and select this area.

3.2.2.2. Selection of respondents

A list of farmers was prepared for every selected villages who were rearing the dairy animals and having atleast experience of one transition period of dairy animals. A total of 100 respondents were selected based on purposive sampling. The basic criteria that were used to select the respondent include-

- ❖ Respondents should be involved in dairy farming
- ❖ Respondent should have at least one year of experience of following transition period practices.
- ❖ Responding farmers should possess at least one calf.

Table-3.1: List of respondents from selected village

S/No.	Block	Village	Total number of respondents
1.	Mathura	Jait	10
		Mudesi	10
2.	Raya	Naglabharau	10
		Naglagarh	10
3.	Chhata	Akbarpur	10
		Alwai	10
4.	Govardhan	Rasoolpur	10
		Poora	10
5.	Farah	Barari	10
		Shahpur	10

3.3. Variables their operationalization and measurements

For the research, it is customary to precisely mention the variables used for the study with their working concepts and measurement procedures. The variables were selected after the collection of review of literature and consultation with the experts. The table 3.2 shows the selected variables and their measurement procedures.

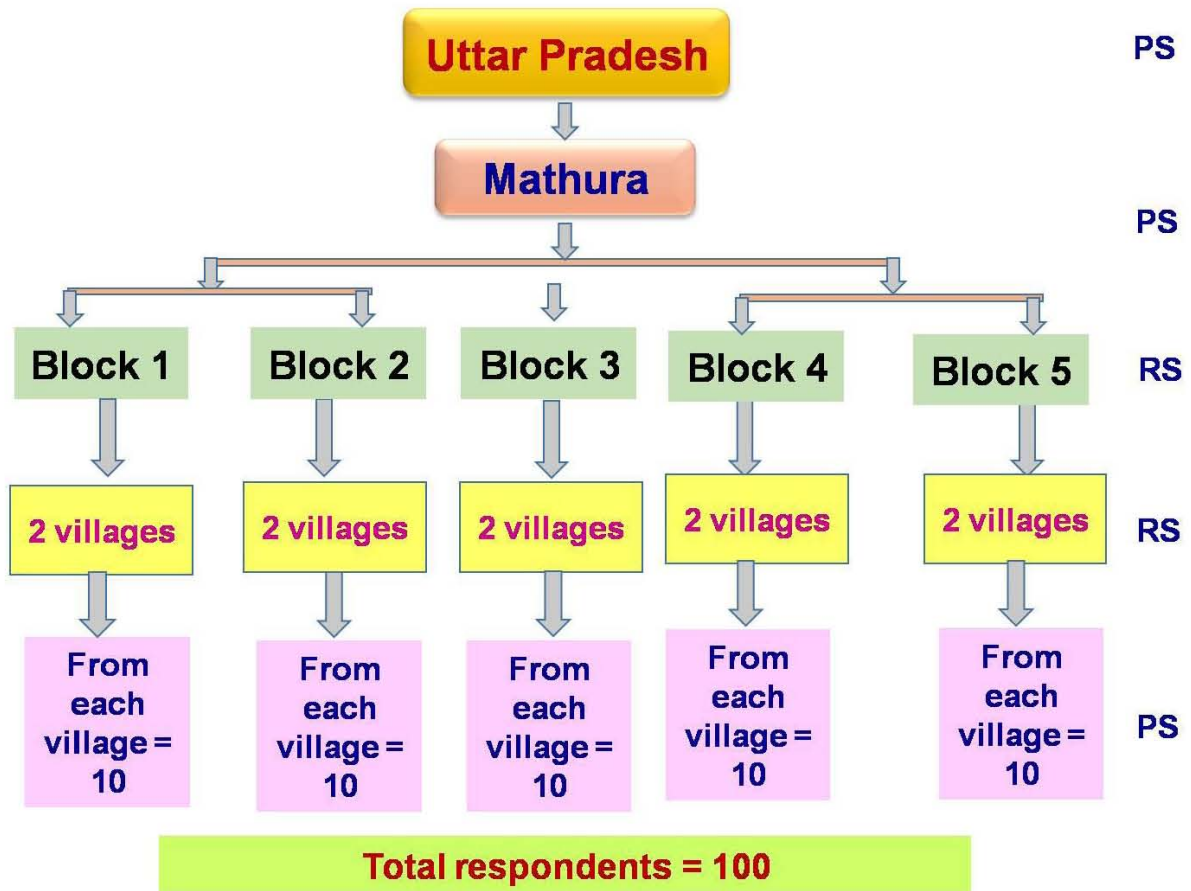
Table-3.2: Variables and their measurement

S/No.	Variables	Measurements
1.	Age	Direct questioning
2.	Education	Structured interview schedule
3.	Experience	Direct questioning
4.	Total Income	Structured interview schedule
5.	Land Holding	
6.	Herd size	
7.	Milk production	
8.	Milk disposal pattern	
9.	Management practices	
10.	Productive parameters	
11.	Reproductive parameters	
12.	Indigenous Traditional Knowledge (ITKs)	
13.	Information source	
14.	Incidence of diseases	
15.	Knowledge on transition period	Knowledge test developed
16.	Adoption	Interview schedule and adoption Index
17.	Constraints	Rank Based Quotient (RBQ)

3.3.1. Age

It is operationalized as the number of completed years of respondents at the time of interview. The respondents were classified into three categories (Census report, GOI, 1981)

Figure 3.3: Sampling design



P.S.- Purposive sampling; R.S.- Random sampling

S/No.	Age in years	Years
1.	Young	<36 years
2.	Medium	36-46 years
3.	Old	>46 years

3.3.2. Education

It refers to level of formal education attained by an individual respondent. The scoring will be done as per the procedure followed by Somasundaram (1995).

S/No.	Category	Score
1.	Illiterate (0)	0
2.	Primary (up to 4 th)	1
3.	Middle (5 th -8 th)	2
4.	Secondary (8 th -10 th)	3
5.	Higher secondary (12 th passed)	4
6.	Graduate and above	5

3.3.3. Experience in dairy farming

It refers to the actual number of years of experience of the respondent in dairy farming. It will be classified on the basis of mean and standard deviation.

S/No	Category	Years
1.	Low	<12 years
2.	Medium	12-23 years
3.	High	>23 years

3.3.4. Total Income

It is operationally defined as the total income generated by various sources. Total income of the respondents will be categorized on the basis of mean and standard deviation.

S/No	Category	Rupees
1.	Low	<178135.
2.	Medium	178135-241872
3.	High	>241872.

3.3.5. Land Holding

It is operationally defined as the actual land operated by an individual family at the time of investigation. The respondents were classified into landless, marginal, small, semi-medium, medium and large categories as follows (suggested by G.O.I., 2001)

S/No.	Category	Land holding (Hectares)
1.	Landless	0
2.	Marginal	<1
3.	Small	1-2
4.	Semi-medium	2-4
5.	Medium	4-10
6.	Large	> 10

3.3.6. Herd Size

It refers to the total number of cattle, buffaloes own by the respondent at the time of investigation. The respondents were classified into small, medium and large herd size on the basis of mean and standard deviation.

S/No.	Category	Animals
1	Small	<4 animals
2	Medium	5-6 animals
3	Large	>6 animals

3.3.7. Milk Production

It is defined as total quantity of milk produced in litres by lactating livestock (cows, buffaloes) on the previous day of investigation. It will be classified on the basis of mean and standard deviation.

S/No.	Category	Litres
1.	Low	<16 litres
2.	Medium	16-21 litres
3.	High	>21 litres

3.3.8. Milk consumption

It was operationalized as the total quantity of milk consumed (in litres) by the family members, one day prior to investigation. It was determined by developing a schedule for the same. The respondents were classified into low, medium and high category.

S/No.	Category	Litres
1.	Low	up to 3.5 litres
2.	Medium	3.5 – 4.5 litres
3.	High	> 4.5 litres

3.3.9. Milk Disposal Pattern

It is operationalized as the amount of milk sold by the respondent at the time of investigation. It will be classified on the low, medium and high production of milk.

S/No.	Agency	Score
1.	Household	0
2.	Local customers	1
3.	Milk vendor	2
4.	Sweet shop	3

5.	Milk co- operative	4
6.	Private dairy	5

3.3.10. Information source of respondents

The sources from where the respondents are getting information are called information sources and these comprise personal localite, personal cosmopolite and impersonal cosmopolite sources. Personal localite sources are those which originate from within the social system of the respondents like neighbours, relatives, local leaders etc.

Personal cosmopolite sources of information are those which are from outside the social system of the respondents like Vos, LEOs, government officials etc. In case of impersonal cosmopolite sources, here the sources of information are from outside the social system of the receiver and at the same time no personal communication exists between the source and the receiver of the information. For example- radio, T.V, newspaper etc.

Sources	Examples	Category	Range
A. Personal localite sources	1. Friends 2. Family Members 3. Relatives 4. Local Leader	Low	<3 sources
		Medium	3-6 sources
		High	>6 sources
B. Personal cosmopolite sources	1. Veterinary Officer 2. Insurance Agent 3. Bank Person 4. Livestock Extension Officer 5. Non- Government Organization 6. Other	Low	<2 sources
		Medium	2-5 sources
		High	>5 sources
C. Impersonal cosmopolite sources	1. Radio 2. T.V. 3. Newspaper 4. Leaflet 5. Poster	Low	<3 sources
		Medium	3-5 sources
		High	>5 sources

3.3.11. Management Practices

It refers to the practices followed by the respondents in the areas of feeding, management and healthcare practices during the transition period of dairy animals. Housing along with feeding management plays a very significant role in exploiting real potential of dairy animals and both of them constitute about 75% of total cost incurred on milk production in dairy animals. Understanding of management practices followed by the respondents is crucial to identify the strengths and weaknesses of the animal rearing system and to devise appropriate intervention policies. Thus existing feeding, management and healthcare practices followed by the respondents during the transition period of dairy animal by collected.

A. Feeding practices during transition period

S. No	Particulars	Scores
1.	Green fodder	
	Legume +Non legume	4
	Legume	3
	Non legume	2
	Grasses	1
2.	Dry fodder	
	Paddy straw + Wheat Straw	4
	Paddy straw	3
	wheat straw	2
	Any other combination	1
3.	Type of concentrate feeding	
	Mixed	3
	Compounded cattle feed	2
	Home produced ingredients	1
4.	Feeding standard followed	
	Bodyweight	5
	Milk production	4
	Age	3
	Milk Fat	2
	No criteria	1
5.	Processing of fodders	
	Silage making	4
	Chemical processing	3
	Chaffed	2

	As such	1
6.	Feeding of concentrate to advanced pregnant heifer	
	For last two month	4
	For last one month	3
	For last 15 days	2
	No special feeding	1

B. Generalmanagement practices during transition period

S/No.	Practices	Scores
1	Dry cow therapy a. Yes b. No	a= 1 b= 0
2	Method of drying a. Intermittent milking b. Abrupt c. Incomplete	a= 2 b= 1 c= 0
3	Vaccination a. Yes b. No	a= 1 b= 0
4	Housing of advanced pregnant animal a. Separate housing b. With herd	a= 1 b= 0
5	Providing bedding to pregnant animal a. Yes b. No	a= 1 b= 0
6	Watering the animal after parturition a. Yes b. No	a= 1 b= 0
7	Attending and assisting the animal during parturition a. Yes b. No	a= 1 b= 0
8	Cleaning the calf a. By rubbing with dry cloth b. Licking by the dam	a= 1 b= 0
9	Placenta disposal a. Buried in soil b. Thrown away c. Not required	a= 2 b= 1 c= 0
10	Get assistant when placenta was not shed a. Veterinary officer b. LEO c. Quacks	a= 2 b= 1 c= 0
11	Washing the hind quarter after calving a. Yes b. No	a= 1 b= 0
12	Washing the udder before milking a. Yes	a= 1 b= 0

	b. No	
13	Washing the animal before milking a. Yes b. No	a= 1 b= 0

C. Healthcare practices followed during transition period

S/No.	Practices	Scores
1.	Deworming of the animals a. Regular b. Occasional c. Not practiced	a= 2 b= 1 c= 0
2.	Practices for controlling ectoparasites a. followed b. not followed	a= 1 b= 0
3.	Cleanliness of the shed a. clean b. dirty	a= 1 b= 0
4.	Washing of hind quarter after dropping of placenta a. yes b. no	a= 1 b= 0
5.	Grooming of the animals a. followed b. not followed	a= 1 b= 0
6.	Isolation of sick animals from healthy ones a. followed b. not followed	a= 1 b= 0
7.	Getting assistance in case of difficult parturition a. veterinary professional b. livestock inspector c. quack	a= 2 b= 1 c= 0

3.3.12. Productive parameters

The productive and reproductive traits of dairy animals maintained by the respondents were calculated. These traits state about the current status of animals and scope of improvement in the area. These traits should be maintained for sustaining the milk productivity of animal. The selected traits are operationalized as follows:

- 1) **Average Daily Milk Yield:** It is referred to the average milk yield of an animal during the lactation. This was measured in litres/day by using the following formula

$$\text{Average milk yield (litre./day)} = \text{Lactation yield} / 305 \text{ days}$$

- 2) **Lactation Length (LL):** It is referred to the number of days a cow or buffalo remain in milk from the date of calving to the date of dry. It express in days or months.

$$\text{Average lactation length} = \frac{\sum_{i=1}^n L_i}{n}$$

Where L_i = Lactation Length of i^{th} animal ($i=1---n$)

n = Total number of milch animal with farmer

- 3) **Lactation Milk Yield (LMY):** It is operationalized as the average total quantity of milk produced by an animal in its lactation period. It is expressed in litres and calculated by following formula:

Lactation Milk Yield (litres): Peak yield x 200

- 4) **Peak Yield (PY):** It is measured as the highest milk produced by the milch animal in it lactation length. It is express in liters.
- 5) **Dry Period (DP):** It refers to the number of days a cow/buffalo remained dry i.e. the interval between the date of dry to the date of next calving and it was expressed in days.

$$\text{Average dry period} = \frac{\sum_{i=1}^n D_i}{n}$$

Where D_i = Dry period of i^{th} animal ($i=1----n$)

n = Total number of milch animal with farmer

3.3.13. Reproductive parameters

- 1) **Age at First Calving (AFC):**It is the actual age of dairy animals at the time of its first calving. It is expressed in days.
- 2) **Service Period:** It is the period required to get conceived after calving and expressed in days. It should be as minimum as possible for better production of the animals.

- 3) **Service per conception:** It is operationalized as an average number of artificial inseminations or natural services required by an animal to become pregnant.
- 4) **Calving Interval (CI):** It is the period between two successive calving i.e. the period between the calving of the first calf to the calving of immediate next calf and was expressed in days.

$$\text{Average calving interval} = \frac{\sum_{i=1}^n P_i}{n}$$

Where P_i = Calving interval of i^{th} animal ($i=1\text{---}n$)

3.3.14. Indigenous Traditional Knowledge (ITKs) used by respondents

Indigenous traditional knowledge is the local knowledge – knowledge that is unique to a given culture or society where its knowledge passes from generation to generation. It is the knowledge that people have gained through inheritance from their ancestors. Here, the ITKs used for the treatment of various transition period abnormalities like infectious diseases (Retention of Foetal Membranes, Metritis, mastitis etc.), metabolic diseases (milk fever, ketosis, prolapse etc.) and calf diseases (calf scour, pneumonia, naval ill etc.) were identified so as to assess the existing practices followed by the respondents during transition period of the dairy animals.

3.3.15. Incidence of Diseases

It is a measure of occurrence of a disease event within a defined time period in a specified animal population. This was studied with the help of interview schedule.

3.3.16. Knowledge on transition period of dairy animals

Knowledge in the present study refers to which information and understanding, the respondent has about the scientific practices during the transition period of dairy animal.

Development of Knowledge test

In knowledge test the variable indicated the extent of knowledge in respect to the scientific practices during transition period of dairy animals, the respondents

possessed at the time of interview. The steps adopted to construct the knowledge test are as follows-

i. Collection of items

A detailed list of knowledge items related to transition period of dairy animals was prepared after reviewing relevant literature of books, compendium etc and help of experts. The suitability and applicability of these knowledge test items in the study areas was further validated by experts. The selection of the items was done on the basis of the following criteria:

- i. It should promote thinking.
- ii. It should have certain difficulty.
- iii. It should differentiate the well informed from the less knowledgeable.

Initially, 50 test items were formulated for conducting the knowledge test of the dairy farmers with the help of subject matter specialists and professionals. The questions in this initial test statement were of multiple choice types

ii. Item analysis and pretesting

The initially prepared knowledge test with 50 test items was administered to 20 respondents from non-sampling area of the study locale. The respondents are assigned 3, 2, 1 and 0 scores for their most appropriate, appropriate, least appropriate and irrelevant or wrong answer responses, respectively. Total score of individual respondent was attained by summing up his score on all the statements. Each of the statement was then subjected to difficulty index and discrimination index.

iii. Difficulty index:

The difficulty index of an item is defined as the proportion of respondents giving correct answer to that particular item. This is calculated by the formula:

$$Di = \frac{ni}{Ni} \times 100$$

Where,

Di=Difficulty index in % of ith item

ni=No. of respondents giving correct answer to the ith item

N_i = Total no. of respondents to whom the i^{th} item was administered

iv. Discrimination index:

The discrimination index expresses the extent to which the given item discriminates among respondent who differ sharply in their knowledge measured by the test as a whole. An item has greater power to discriminate knowledgeable from those who are lesser knowledgeable, if it answered correctly by some of the respondents rather than the item which is either answered correctly by everyone or none in the sample. The discrimination index can be obtained by calculating the phi-coefficient as formulated by Perry and Michael(1951). However, Mehta(1958) in using $E^{1/3}$ method to find out item discrimination emphasized that this method was analogous to, and hence, a convenient substitute for the phi-coefficient. The $E^{1/3}$ formula was used in the present study.

$$E^{1/3} = \frac{(S1 + S2) - (S5 + S6)}{N/3}$$

Where,

S1, S2, S5 and S6 were frequencies of correct answers in groups G1, G2, G5 and G6

N = Total no. of respondents in the sample of item analysis

v. Final selection of items

Based on difficulty and discrimination indices, 35 items having values ranging between 0.30 to 0.90 were finalized for the actual knowledge test of the respondents. This final test was administered to respondents in sample areas for the assessment of their knowledge regarding transition period of dairy animals.

vi. Reliability and validity of the knowledge test

The reliability of the knowledge test was assessed using the split half technique. The final knowledge test with 35 items were administered to twenty respondents selected randomly in the non-sampling area of the study area. The total scores obtained by each of these respondents on odd and even numbered item were calculated separately. These two sets of scores were treated as two half of the test. The correlation coefficient between two set of scores was calculated. The 'r' value calculated was 0.64, which was found significant at 1 percent level of significance, there by

indicating that the test had high internal consistency. The validity of this test was assessed through content validity.

3.3.17. Adoption of practices on transition period of dairy animals

Adoption is defined as a decision to make full use of an innovation as a best course of action available. To study the adoption level of improved dairy farming practices during transition period by dairy farmers, interview schedule was developed. The respondents were asked to give opinion about the use of practices (adoption) during transition period on three points viz; fully adopted, partially adopted, not adopted and the numbers 2, 1 and 0 were assigned respectively. Extent of adoption was calculated on the basis of these scores. The adoption score obtained by individual respondent was converted into adoption index. The weighted mean score of each statement was calculated and the statements were ranked accordingly.

$$\text{Adoption Index} = \frac{\text{Total Obtained Score}}{\text{Total Obtainable score}} \times 100$$

3.3.18. Constraints faced by the respondents on transition period of dairy animals

Constraints are the problems perceived by the dairy farmers during the transition period of dairy animals. The major constraints of dairy farmers regarding adoption of improved dairy farming practices were listed out in interview schedule and the respondents were asked to rank them according to their perception. After obtaining the final data, these constraints were ranked by Rank Based Quotient (R.B.Q.) method.

Rank Based Quotient (RBQ) estimation

RBQ was estimated using the RBQ formula developed by Sabarathnam and Vennila (1996).

$$\text{RBQ} = \frac{\sum_{i=1} (F_i)(n+1-i)}{Nn} \times 100$$

Where,

F_i = Frequency of farmers for the i^{th} rank of the technological need

n = Number of farmers

N = Number of ranks

Σ = it directs to sum the multiplication factor

3.4.Data collection

Based on the objectives of the study semi structured interview schedule was constructed and was pretested among non-sample respondents for its suitability in getting responses. The final interview schedule was modified and used for collecting the data. Information was collected by the farmers through personal interview method. For the knowledge assessment of the respondents regarding improved management practices during transition period, knowledge test was formulated. The other methods that were used include-

- ❖ Appropriate PRA tools
- ❖ Observation
- ❖ Focus group discussion

3.5. Statistical tools for data analysis

The collected data was scored, compiled, tabulated and subjected to various tentative statistical tools like descriptive statistics, Correlation analysis and other suitable tools were used for analysis of the data.

A decorative border composed of black and grey floral and butterfly motifs. The border features intricate scrollwork, leaves, and three butterflies with detailed wing patterns. The word "Results" is centered within this decorative frame.

Results

Chapter - 4

Results

The data was collected from the selected respondents of Mathura district and the results obtained after the analysis of collected data are included in this chapter. The findings are presented in following heads-

- 4.1. Socio- economic profile of the respondents
- 4.2. Existing management practices followed by the respondents
- 4.3. Productive and reproductive parameters of dairy animals
- 4.4. Indigenous traditional knowledge of the dairy farmers
- 4.5. Incidence of disorders during transition period
- 4.6. Knowledge of dairy farmers about transition period
- 4.7. Adoption behaviour of farmers about various practices during transition period
- 4.8. Constraints in adoption of improved practices among dairy farmers

4.1. Socio- economic profile of the dairy farmers

Socio- economic profile of the respondents include age, education, experience, total income, land holding, herd size, milk production per day and milk disposal pattern. Along with this, various information sources of the respondents were also considered.

4.1.1. Age

The respondents were categorized into three groups as young, medium and old age. The data presented in table 4.1.1 revealed that majority 48.00% of the respondents belong to old age group, 32.00% belong to middle age group and 20.00% belong to young age group.

Table 4.1.1: Frequency and percentage distribution of respondents according to age

S/No.	Age in years	Frequency	Percentage
1.	Young (<36)	20	20.00
2.	Medium (36-46)	32	32.00
3.	Old (>46)	48	48.00

4.1.2. Education

The data represented in table 4.1.2. about the basis of level of education states that out of total number of respondents, 4.00% were illiterate, 20.00% passed primary level, 40.00% were having middle level of education, 28.00% were having secondary education, 8.00% passed higher secondary and only 4.00% were graduate and above.

Table 4.1.2: Frequency and percentage distribution of respondents according to education

S/No.	Category	Frequency	Percentage
1.	Illiterate (0)	4	4.00
2.	Primary (up to 4 th)	20	20.00
3.	Middle (5 th -8 th)	40	40.00
4.	Secondary (9 th -10 th)	28	28.00
5.	Higher secondary (12 th passed)	8	8.00
6.	Graduate and above	4	4.00

4.1.3. Experience in dairy farming

This section refers to the experience of the respondents i.e., number of years spent in the dairy farming by the respondents. The respondents were categorised on the basis of collected data as low (<12 years), medium (12-23 years) and high (>23 years). The results presented in the table 4.1.3 shows that nearly 20.00% respondents were having low experience in dairy farming and 32.00% and 48.00% were having medium and high experience in dairy farming respectively.

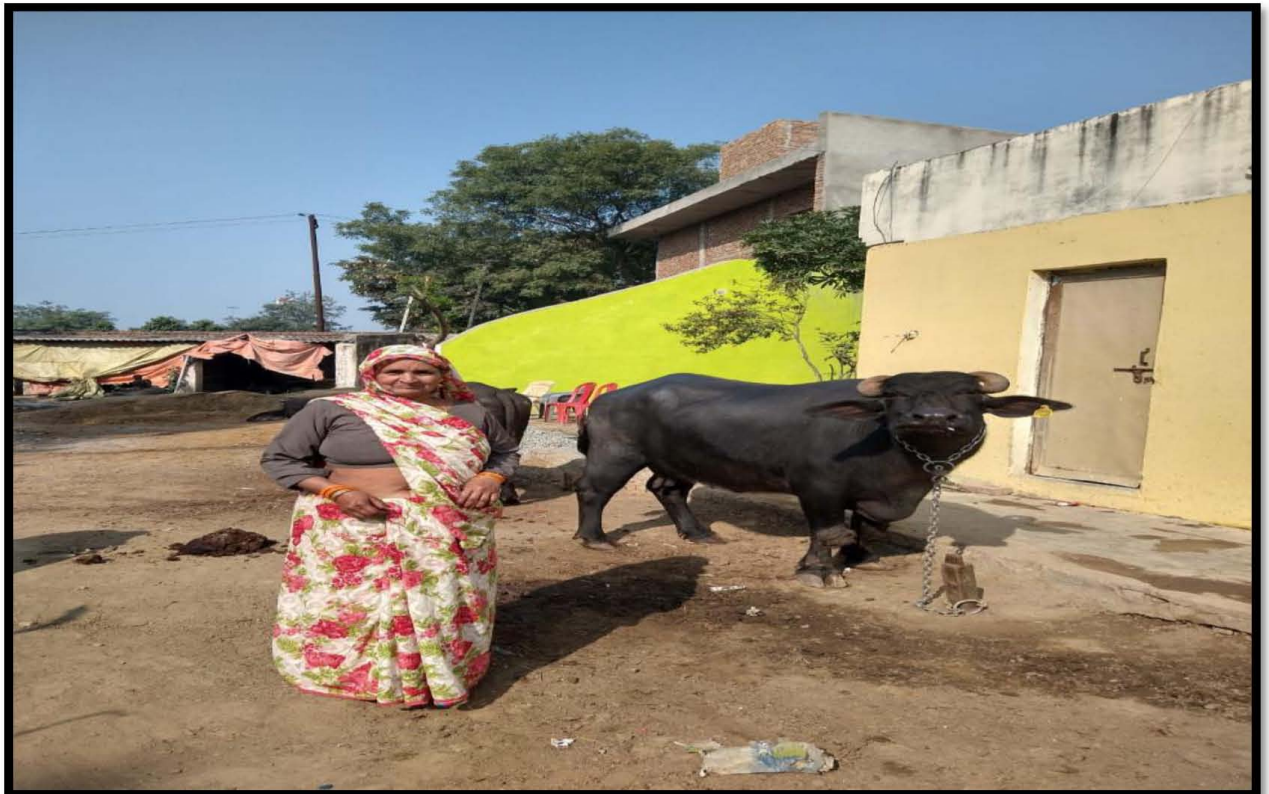
Table 4.1.3: Frequency and percentage distribution of respondents according to experience in dairy farming

S/No	Category	Frequency	Percentage
1.	Low (<12)	20	20.00
2.	Medium (12-23)	32	32.00
3.	High (>23)	48	48.00

Plates-1: Collection of data by interviewing the respondent



Plates-2: Interaction with the respondent



Plates-3: Assessment of animal rearing practices followed by respondent



Plates-4: Assessment of animal rearing practices followed by respondent



4.1.4 Total Income

Total income of the respondents was further classified and the data presented in the table 4.1.4 shows that out of total respondents, 12.00% belong to low level of income, 44.00% were having medium income level and 44.00% were having high level of income

Table 4.1.4: Frequency and percentage distribution of respondents according to income

S/No	Category	Frequency	Percentage
1.	Low (<178135)	12	12.00
2.	Medium (178135-241872)	44	44.00
3.	High (>241872)	44	44.00

4.1.5. Land Holding

The results presented in table presented 4.1.5 reveals that majority of the farmers were semi- medium (64.00%) followed medium (20.00%) and small farmers (16.00%). The landless, marginal and large farmers were not reported in the study area.

Table 4.1.5: Frequency and percentage distribution of the respondents according to their land holding

S/No	Category (In hectares)	Frequency	Percentage
1.	Landless	0	0.00
2.	Marginal (0-1)	0	0.00
3.	Small (1-2)	16	16.00
4.	Semi-medium (2-4)	64	64.00
5.	Medium (4-10)	20	20.00
6.	Large (more than 10)	0	0.00

4.1.6. Herd Size

The randomly selected respondents were classified on the basis of number of animals owned (table 4.1.6.) by them, i.e., small(<4), Medium (5-6) and Medium (5-6). It shows that 44.00% of respondents possess large herd size of more than six animals. It was further revealed that 32.00% and 24.00% of the respondent's possess medium and small size of herd respectively.

Table 4.1.6 (A): Frequency and percentage distribution of the respondents according to their herd size

S/No	Category	Frequency	Percentage
1.	Small (<4)	24	24.00
2.	Medium (5-6)	32	32.00
3.	Large (>6)	44	44.00

Out of total 652 animals possessed by the respondents 136, 192 and 324 were indigenous cows, crossbred cows and buffaloes respectively.

Table 4.1.6 (B): Category wise distribution of dairy animals per household

S/No.	Particulars	Indigenous	crossbred	Buffaloes	Total
1.	In milk Non pregnant	48	76	140	264
2.	In milk Pregnant	24	44	84	152
3.	Dry	8	12	24	44
4.	Pregnant heifer	12	12	24	48
5.	Calves	44	48	52	144
6.	Adult male	0	0	0	0
7.	Total	136	192	324	652

4.1.7 Milk Production

The total household milk produced per day was categorised. The results shown in table 4.1.7 states that 48.00% of the respondents belong to low producer category,

28.00% belong to medium producer category and 24.00% belong to high producer category. The average milk productivity of dairy animals at the time of investigation in the study area was 3.40, 7.21 and 5.65 litre for indigenous, cross breed and buffalo respectively.

Table 4.1.7: Frequency and percentage distribution of the respondents according to their total milk production per day

S/No	Category	Frequency	Percentage
1.	Low (<16 liters)	48	48.00
2.	Medium (16-21 liters)	28	28.00
3.	High (>21 liters)	24	24.00

4.1.8. Milk Disposal Pattern

The disposal of milk done by the respondents through various marketing channels like private dairy, milk co-operatives, sweet shops, milk vendors, local customers along with the utilization of milk for household consumption. The data presented in the table 4.1.8 states that, out of the total milk produced per day, 20.63% is utilized for household consumption, 25.56% is sold to local customers, 26.49% is sold to local milk vendors and 27.32% is sold to local sweet shops. The operation of milk cooperative doesn't exist in area.

Table 4.1.8: Frequency and percentage distribution of the disposal pattern of milk per day by the respondents

S/No.	Agency	Frequency	Percentage
1.	Household	444	20.63
2.	Local customers	550	25.56
3.	Milk vendor	570	26.49
4.	Sweet shop	588	27.32
5.	Milk co- operative	0	0
6.	Private dairy	0	0
7.	Total	2152	100.00

4.1.9 Milk consumption

This section reveals about the daily household milk consumed by the respondents. The data presented in table 4.1.9 reveals that majority of the respondents belong to the high milk consumers (56.00%) followed by medium and low consumers with percentages 32% and 12% respectively.

Table 4.1.9: Frequencies and percentages of distribution of respondents according to their milk consumption

S/No	Category	Frequency	Percentage
1.	Low (up to 3.5 litre)	12	12.00
2.	Medium (3.5 – 4.5 litre)	32	32.00
3.	High (> 4.5 litre)	56	56.00

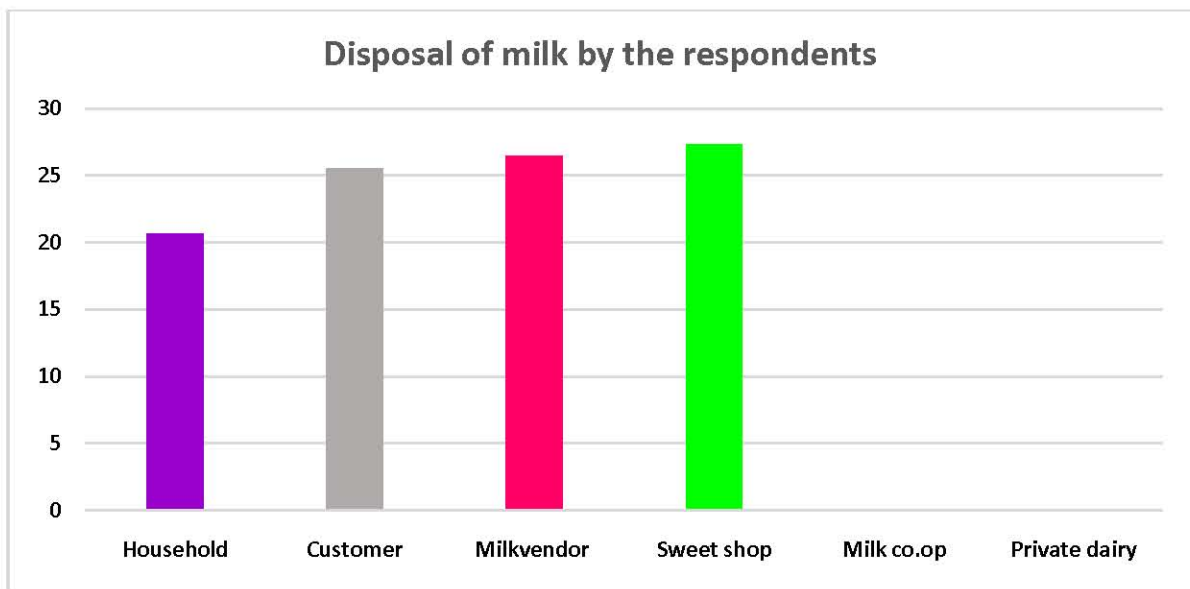
4.1.10 Information sources

This section reveals various sources of information from where the respondents may collect information. These sources are classified as personal localite sources (family/friends/relatives/leaders), personal cosmopolite sources (V.O/insurance agent/bank officer/LEO/NGO) and impersonal cosmopolite sources (radio/T.V./newspaper).

Table 4.1.10: Frequencies and percentages of distribution of respondents according to their information sources

S/No	Information sources of the farmers	Category	Frequency	Percentage
A.	Personal localite sources	Low (<3)	24	24.00
		Medium (3-6)	24	24.00
		High (>6)	52	52.00
B.	Personal cosmopolite sources	Low (<2)	28	28.00
		Medium (2-5)	16	16.00
		High (>5)	56	56.00

Figure 4.1.1: Disposal pattern of milk by respondents



C.	Impersonal cosmopolite sources	Low (<3)	16	16.00
		Medium (3-5)	56	56.00
		High (>5)	28	28.00

The respondents were categorised on the basis of having low, medium and high sources of information for all the above categories separately. The data shown in the table 4.1.9 states the extent of source of information among the respondents. Study reveals that 24.00% respondents were receiving low information through personal localite sources followed by 24.00% were receiving medium information and 52.00% were receiving high information. The respondents gain the knowledge from paravets, LSA/Stockman and Veterinary Officers who act as major cosmopolite channels. Personal cosmopolite channel of information showed that 56.00% of farmers were in high category. Whereas, 28.00% in low and 16.00% were in medium category respectively. It was also revealed that majority of the respondents (56.00%) were receiving medium information through impersonal cosmopolite sources in the study area.

4.2. Existing management practices followed by the respondents

This section reveals the various feeding, other management and calf management practices followed by the respondents. The frequencies and percentages of various feeding, other management and health care practices were calculated based on collected data and presented as follows-

4.2.1 Existing feeding practices followed by the respondents

Dairy animals in the study area were reared in intensive and stall feeding farming system. Data presented in table 4.2.1 reveals the frequencies and percentages of various feeding management practices followed by the respondents. Majority of the respondents in the study areas are group feeding legume & Non legume and grass to animals. Nearly 64.00% of the respondents offer chaffed fodder to their animals and remaining 36.00% offer it as such. Chemical processing like urea treatment and silage making was not at all adopted by the respondents. No feeding standards were followed by majority (68.00%) of the respondents for feeding their animals and 32.00% respondents were using milk production as the criteria for feeding the

animals. Along with this, most of them are using home produced concentrate mixture for the animals while only 20.00% respondents were using compound cattle feed for their animals.

Table 4.2.1: Frequencies and percentages of distribution of feeding management practices followed by the respondents

S/No.	Feeding of milch animals	Frequency	Percentage
1.	Individual feeding	36	36.00
2.	Group feeding	64	64.00
S/ No.	Particulars	Frequency	Percentage
1.	Green		
	Legume +Non legume	40	40.00
	Legume	16	16.00
	Non legume	24	24.00
	Grasses	20	20.00
2.	Dry		
	Paddy straw + Wheat Straw	4	4.00
	Paddy straw	28	28.00
	Wheatstraw	0	0.00
	Any other combination	68	68.00
3.	Type of concentrate feeding		
	Mixed	28	28.00
	Compounded cattle feed	20	20.00
	Home produced ingredients	52	52.00
4.	Feeding standard followed		
	Bodyweight	0	0.00
	Milk production	32	32.00
	Age	0	0.00
	Milk Fat	0	0.00
	No criteria	68	68.00
5.	Processing of fodders		
	Silage making	0	0.00
	Chemical processing	0	0.00
	Chaffed	64	64.00
	As such	36	36.00
6.	Feeding of concentrate to advanced pregnant heifer		
	For last two month	24	24.00
	For last one month	36	36.00

Plates-5: Exiting feeding practices followed by the respondents.



Plates-6: Feeding of cake to animals after measurement



Plates-7: Arrangement of mangers for feeding the animals.



Plates-8: Housing arrangement of dairy animals.



	For last 15 days	28	28.00
	No special feeding	12	12.00

4.2.2 Existing management practices followed by the respondents

Data presented in table 4.2.2 reveals the frequencies and percentages of various other management practices followed by the respondents. It is observed that 98.00% of the respondents were not aware about the dry cow therapy and therefore not following it. Intermittent milking is adopted by only 20.00% respondents for drying their animals while 40.00% and 40.00% respectively were using incomplete milking and abrupt stoppage of milking for drying their animals. All the other cleanliness related practices were adopted by majority of the respondents except washing the animal before milking which is not adopted by 76.00% of the farmers. Proper disposal of placenta is not followed by 88.00% of the respondents while it is adopted by only 12.00% respondents.

Table 4.2.2: Frequencies and percentages of distribution of general management practices followed by the respondents

S. No	Particulars	Frequency	Percentage
1.	Dry cow therapy		
	Followed	02	02.00
	Not followed	98	98.00
2.	Method of drying		
	Intermittent milking	20	20.00
	Incomplete milking	40	40.00
	Abrupt stoppage	40	40.00
3.	Cleanliness of the shed		
	Clean	48	48.00
	Dirty	52	52.00
4.	Housing of advanced pregnant animal		
	Separate housing	44	44.00
	With herd	56	56.00
5.	Providing bedding to pregnant animal		
	Followed	68	68.00
	Not followed	32	32.00
6.	Watering the animal after parturition		
	Followed	68	68.00

	Not followed	32	32.00
7.	Attending and assisting the animal during parturition		
	Followed	68	68.00
	Not followed	32	32.00
8.	Cleaning the calf		
	By rubbing with dry cloth	36	36.00
	Licking by the dam	64	64.00
9.	Placenta disposal		
	Buried in soil	12	12.00
	Thrown away	56	56.00
	Not required	32	32.00
10.	Grooming of the animals		
	Followed	32	32.00
	Not followed	68	68.00
11.	Washing the hind quarter after calving		
	Followed	70	70.00
	Not followed	30	30.00
12.	Washing the udder before milking		
	Followed	64	64.00
	Not followed	36	36.00
13.	Washing the animal before milking		
	Followed	24	24.00
	Not followed	76	76.00

4.2.3 Existing health care practices followed by the respondents

Data presented in table 4.2.3 reveals the frequencies and percentages of various health care practices followed by the respondents. Regular deworming was followed by only 20.00% of the respondents and practices for ectoparasitic control were followed by 52.00% of the respondents.

Vaccination for prevention of infectious diseases is followed by majority (60.00%) of the respondents. Another major issue of concern is that only 24.00% of the respondents receive treatment from registered veterinary practitioner in case of difficult parturition or retention of foetal membranes and all the remaining respondents treat their animals with the help of livestock supervisors or quacks.

Plates-9: Group arrangement of herd with a calf.



Plates-10: Large herd size of the individual farmer with both cows and buffaloes.



Table 4.2.3: Frequencies and percentages of distribution of various health care practices followed by the respondents

S. No	Particulars	Frequency	Percentage
1.	Deworming of the animals		
	Regular	20	20.00
	Occasional	52	52.00
	Not practiced	28	28.00
2.	Practices for controlling ectoparasites		
	Followed	52	52.00
	Not followed	48	48.00
3.	Vaccination		
	Followed	60	60.00
	Not followed	40	40.00
4.	Washing of hind quarter after dropping of placenta		
	Followed	64	64.00
	Not followed	36	36.00
5.	Isolation of sick animals from healthy ones		
	Followed	40	40.00
	Not followed	60	60.00
6.	Getting treatment when placenta was not shed by the dam		
	Veterinary officer	24	24.00
	Livestock supervisor	48	48.00
	Quack	28	28.00
7.	Getting assistance in case of difficult parturition		
	Veterinary professional	24	24.00
	Livestock supervisor	52	52.00
	Quack	24	24.00

4.3 Productive and reproductive parameters of dairy animals

4.3.1. Productive parameters of dairy animals

4.3.1.1. Average Daily Milk Yield (litres)

Daily milk yield of dairy animals is an important indicator showing the performances of dairy animals. The result presented in Table 4.3.1 indicates that the average daily milk yield of Indigenous cow, Crossbreed cow and Buffalo was 2.8 ± 1.34 , 6.31 ± 1.43 and 5.50 ± 0.83 litres/day/animal respectively.

4.3.1.2. Lactation Length

Lactation length was mainly influenced by the parity of lactation. The optimum lactation length (305 days) of the dairy animals is required to make it a profitable entity for the farmers. The results revealed (Table 4.3.1) that the lactation length of Indigenous cow, Crossbreed cow and Buffalo was 224.5 ± 22.30 , 220.91 ± 17.10 and 226.60 ± 10.14 days/ animal respectively.

4.3.1.3. Lactation Milk Yield

Lactation milk yield of dairy animals is one of the indicators of performances of dairy animal. The result from the study shows that the lactation milk yield of Indigenous cow, Crossbreed cow and Buffalo was 912.75 ± 292.00 , 1457.51 ± 315.73 and 1322.24 ± 182.24 liter/animal respectively. Lactation milk yield can also be affected if the peak yield of animals occur in summer season when there is feed and fodder scarcity.

Table 4.3.1: Averages of various productive parameters of the dairy animals in the study area.

S/No	Parameter	Indigenous	Crossbred	Buffaloes
1.	Average daily milk yield (l)	2.8 ± 1.34	6.31 ± 1.43	5.50 ± 0.83
2.	Lactation length (d)	224.5 ± 22.30	220.91 ± 17.10	226.60 ± 10.14
3.	Lactation milk yield (l)	912.75 ± 292.00	1457.51 ± 315.73	1322.24 ± 182.24
4.	Peak yield (l)	5.65 ± 1.39	9.39 ± 1.56	6.72 ± 0.64
5.	Dry period (d)	140.5 ± 22.30	144.09 ± 17.10	138.40 ± 10.14

4.3.1.4. Peak Yield

A quick glance on Table 4.3.1. revealed that the peak yield of Indigenous cow, Crossbreed cow and Buffalo was 5.65 ± 1.39 , 9.39 ± 1.56 and 6.72 ± 0.64 litres/animal respectively. It was generally observed in the second month of lactation in cattle and buffalo.

4.3.1.5. Dry Period

Dry period of 60 days is recommended and found optimum in terms of getting good lactation milk yield. The result from table 4.3.1. indicates that the dry period of Indigenous cow, Crossbred cow and Buffalo was 140.5 ± 22.30 , 144.09 ± 17.10 and 138.40 ± 10.14 days/animal respectively.

4.3.2. Reproductive parameters of dairy animals

4.3.2.1. Age at Puberty

Age at puberty of the dairy animals was also recorded and it was found that for Indigenous cow, Crossbred cow and Buffalo it was 30.05 ± 2.09 , 18.68 ± 1.49 and 22.52 ± 2.14 months/ animal respectively

4.3.2.2. Age at First Calving (Months)

The dairy animal having slow growth in life will be having delayed age at first calving. Increase in age at first calving reflects the poor maintenance of heifer by the farmers and thus it affects the profitability of dairy future. In the present study it was observed that the age at first calving of Indigenous cow, Crossbred cow and Buffalo was 43.55 ± 2.70 , 37.82 ± 2.70 and 55.47 ± 2.73 months/ animal respectively (Table 4.3.2.).

Table 4.3.2: Averages of various reproductive parameters of the dairy animals in the study area

S/No	Parameter	Indigenous	Crossbred	Buffaloes
1.	Age at puberty (m)	30.05 ± 2.09	18.68 ± 1.49	22.52 ± 2.14
2.	Age at 1 st calving (m)	43.55 ± 2.70	37.82 ± 2.70	55.47 ± 2.73
3.	Service period (d)	119.95 ± 8.21	126.97 ± 6.60	193.77 ± 10.20
4.	Service/ conception (no)	4.05 ± 1.05	3.88 ± 1.29	4.13 ± 1.28
5.	Calving interval (d)	508 ± 20.55	434.33 ± 21.19	529.52 ± 12.28

4.3.2.3. Service Period

Service period of the dairy animals should be minimize so that the objective of getting a calf every year can be achieved. The data reveals that the service period of Indigenous cow, Crossbreed cow and Buffalo was 119.95 ± 8.21 , 126.97 ± 6.60 and 193.77 ± 10.20 days/animal respectively.

4.3.2.4. Number of Services Per Conception

A quick review of table 4.3.2. reveals that the service per conception of Indigenous cow, Crossbreed cow and Buffalo was 4.05 ± 1.05 , 3.88 ± 1.29 and 4.13 ± 1.28 days/animal respectively. Lower services per conception helps to keep the optimum calving interval and farmer can achieve calf a year target.

4.3.2.5. Calving Interval

Calving interval represent the performances of dairy animals. The data presented in the Table 4.3.2 state that the calving interval of Indigenous cow, Crossbreed cow and Buffalo was 508 ± 20.55 , 434.33 ± 21.19 and 529.52 ± 12.28 days/animal respectively.

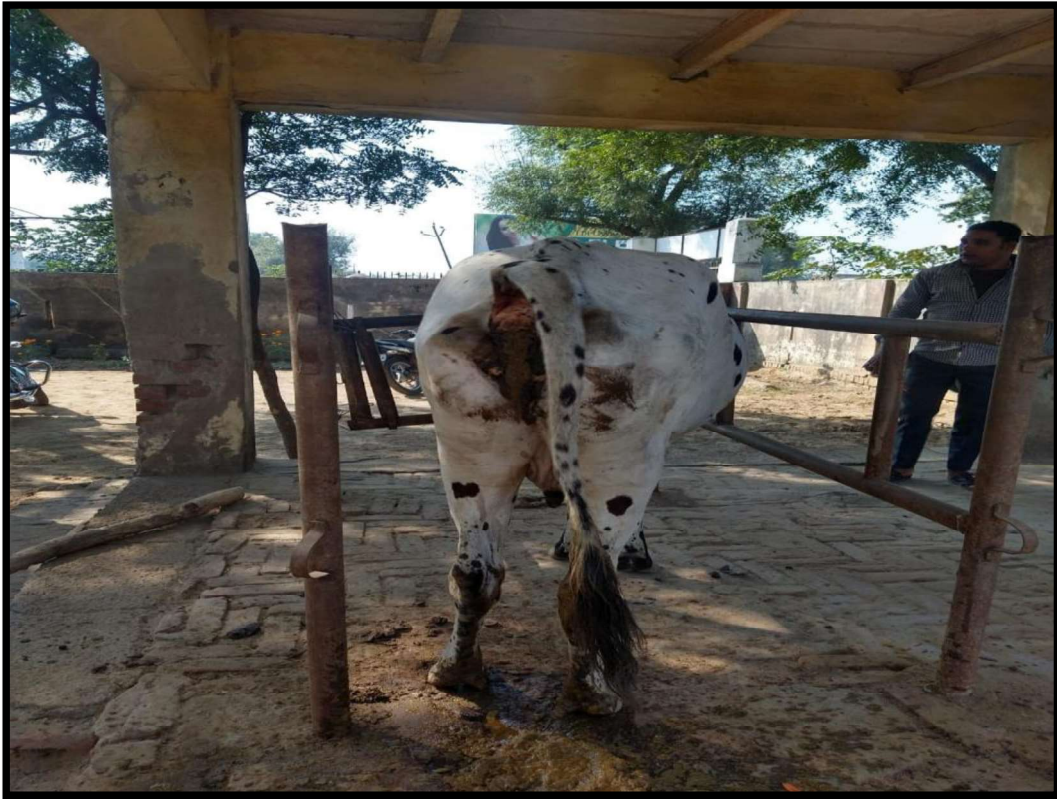
4.4 Indigenous traditional knowledge of the dairy farmers

Indigenous traditional knowledge is the local knowledge that is unique to a particular culture or society where it passes from generation to generation. It is the knowledge that people have gained through inheritance from their ancestors. Here, we are concerned with the knowledge of responding farmers regarding preventive measures and treatment of various diseases in dairy animals during transition period.

These practices can also be covered under existing healthcare practices followed by the farmers. The table 4.4.1, 4.4.2 and 4.4.3 reveals different types of indigenous traditional knowledge possessed by the dairy farmers in the study area. It was observed that the respondents uses jaggery and water solution mostly for expulsion of foetal membrane. Apart from practicing of feeding methi (*Trigonella foenumgraecum*) and jaggery were also followed by most of the respondent.

Metritis, which is termed as the inflammation of uterus in dairy animals. Dairy farmers uses their traditional knowledge to counter the disorder by feeding Samudrijhaga and Kashiphal (*Curcurbit moschotopoir*) in appropriate proportion.

Plates-11: Crossbred cow with metritis presented to the clinic in study area.



Plates-12: Indigenous cow with vaginal prolapse presented to the clinic in study area.

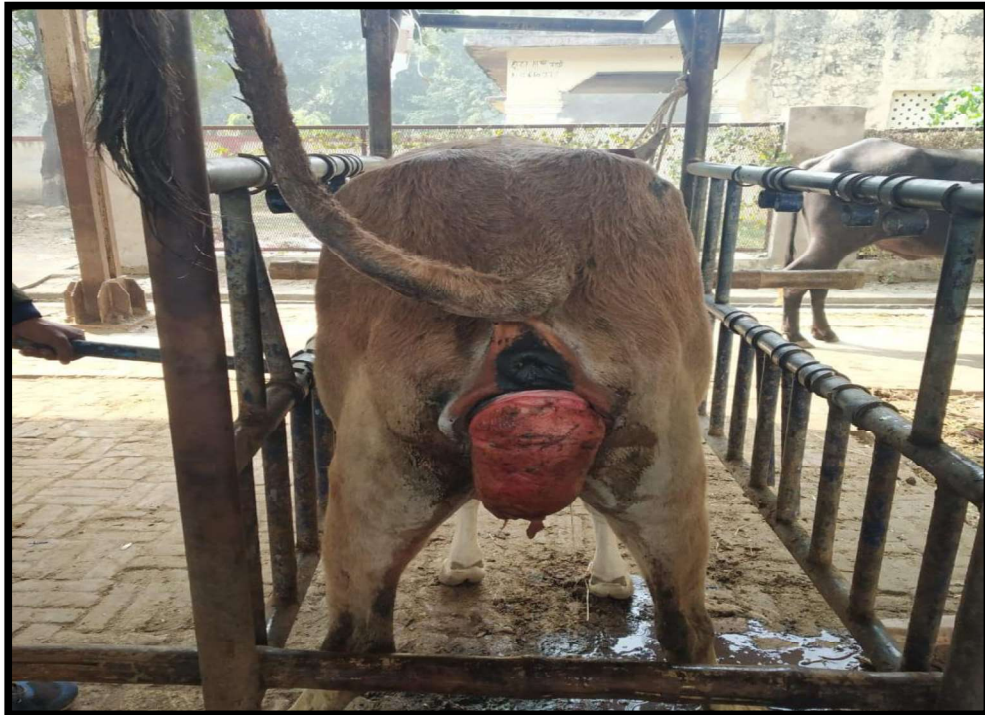


Table 4.4.1: ITKs or existing healthcare practices followed by the respondents for treating infectious diseases of dairy animals

Diseases	S/No	Practices, their ingredients and dosages	Durations
Retention of foetal membranes (RFM)	1.	Jaggery (500 g) mixed in 2 litre	Twice a day for 2 days
	2.	500 g grinded methi (<i>Trigonella foenumgraecum</i>) and 500 g jaggery were mixed and divided in two doses	Twice a day for 2 days
	3.	Neem (<i>Azadirachta indica</i>) leaves paste (100 g)	Once for 2 days
	4.	Barlay (<i>Hordeum vulgare</i>) grain (0.5 kg) along with jaggery (500 g) and divided in two doses	Twice a day for 2 days
Metritis	1.	100 g of Samudrijhaga soaked in water overnight	Once for 2 days
	2.	5 seeds of Kasiphal (<i>Curcubit moschotopoir</i>) were finely crushed and mixed with 250 g Jaggery	Once for 2 days
Mastitis	1.	Spraying of hing decoction (<i>Ferulaas afoetida</i>) over the teats	Once for 3 days
	2.	50 g of Rash kapur along with one banana were mashed	Once for 2 days

To counter the milk fever in dairy animals it was seen that the respondent's practices usage of giving decoction of 500 g Gud + 100 g Ajwain (*Trachyspermum ammi*) was prepared in 2 litre of water to dairy animals. In case of Prolapse, it was seen that Satyanasi seed and jaggery preparation was used. Apart from this they also feed Lajwanti (*Mimosapudica Linn*) seeds and Chiyasupari to the animal.

Table 4.4.2: ITKs or existing healthcare practices followed by the respondents for treating metabolic diseases of dairy animals

Milk fever	1.	Decoction of 500 g Gud + 100 g Ajwain (<i>Trachyspermum ammi</i>) was prepared in 2 litre of water	Twice for one day
	2.	50 g of lahasun (<i>Allium sativum</i>) was grinded and paste was fed.	Once for one day
Prolapse	1.	100 g Satyanasi (<i>Argemone mexicana Linn</i>) seed and 250 g jaggery and make bolus in ghee/ oil	Twice for 2 days
	2.	100 g Lajwanti (<i>Mimosa pudica Linn</i>) seeds were grinded	Once for 2 days
	3.	100 g mishri, 500 g basan and 100 g ghee were mixed	Once for 2 days

For control of disorders in calf majority of them uses the feeding of butter milk with salt to calf, followed by feeding of neem paste prepared from neem leaves to counter calf scour. It was also observed that to control calf pneumonia a mixture of jaggery, ajwain and bedomawas used by the respondents.

Table 4.4.3: ITKs or existing healthcare practices followed by the respondents for treating calf diseases.

Calf scour	1.	Small quantity of Salt was added to 250 ml of Butter milk	Twice for 2 days
	2.	50 gmneem (<i>Azadirachta indica</i>) leaves paste was prepared and fed.	Once for 2 days
Pneumonia	1.	100 g jaggery, 50 g ajwain (<i>Trachyspermum ammi</i>) were mixed	Twice for 2 days
	2.	50 gm of rash kapur was crushed mixed with gud and fed.	Once for 2 days

4.5 Incidences of various diseases during transition period of dairy animals

Incidence of diseases is evaluated to measure the occurrence of the various disease events within definite time period in a specific animal population. The results presented in tables 4.5.1 reveals the incidences of reproductive disorders like dystocia, retention of foetal membrane, metritis and prolapse. The result shows that the incidence of RFM was highest in crossbreed animal followed by buffalo and indigenous animals. The incidence of prolapse was highest in the buffalo (7.41%).

Table 4.5.1: Incidences of various reproductive disorders in dairy animals of study area

S/No	Diseases	Indigenous	Crossbred	Buffaloes
1.	Dystocia	2.21	4.17	5.25
2.	Retention of foetal membranes (RFM)	6.62	13.54	12.96
3.	Metritis	5.15	10.94	11.42
4.	Prolapse	0.74	3.65	7.41

(All the values are in percentage)

The results of metabolic disorder incidence (table 4.5.2.) reveal that the occurrence of milk fever was 2.21, 3.65 and 1.23 in indigenous, crossbreed and buffalo respectively.

Figure 4.5.1: Incidences of various transition period disorders in dairy animals

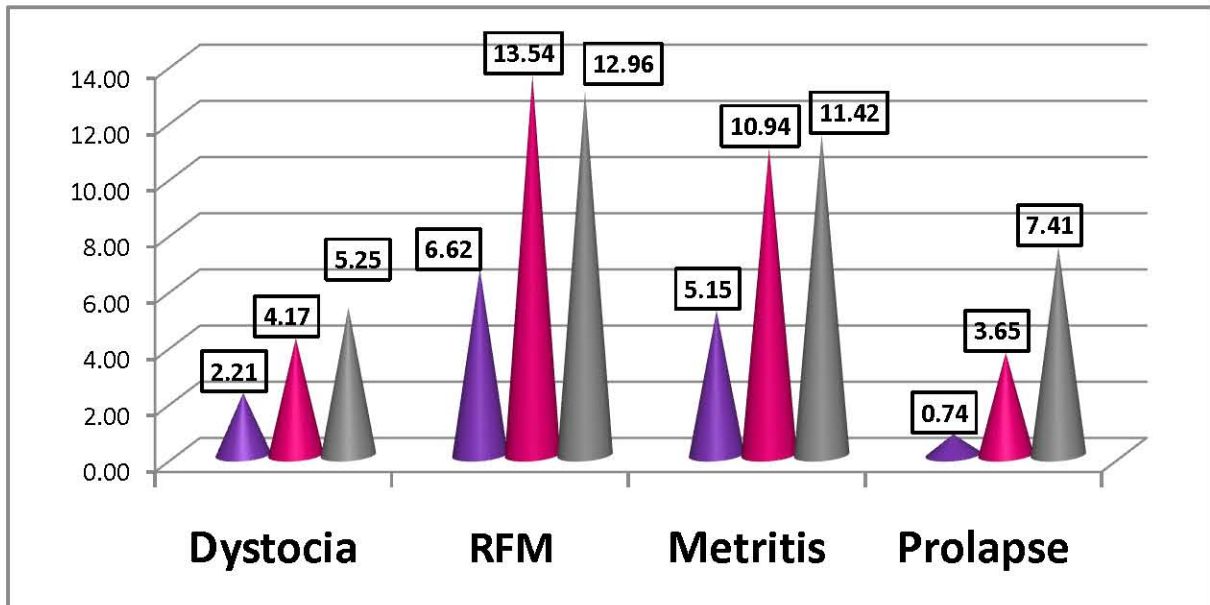


Figure 4.5.2: Incidences of various transition period abnormalities in dairy animals

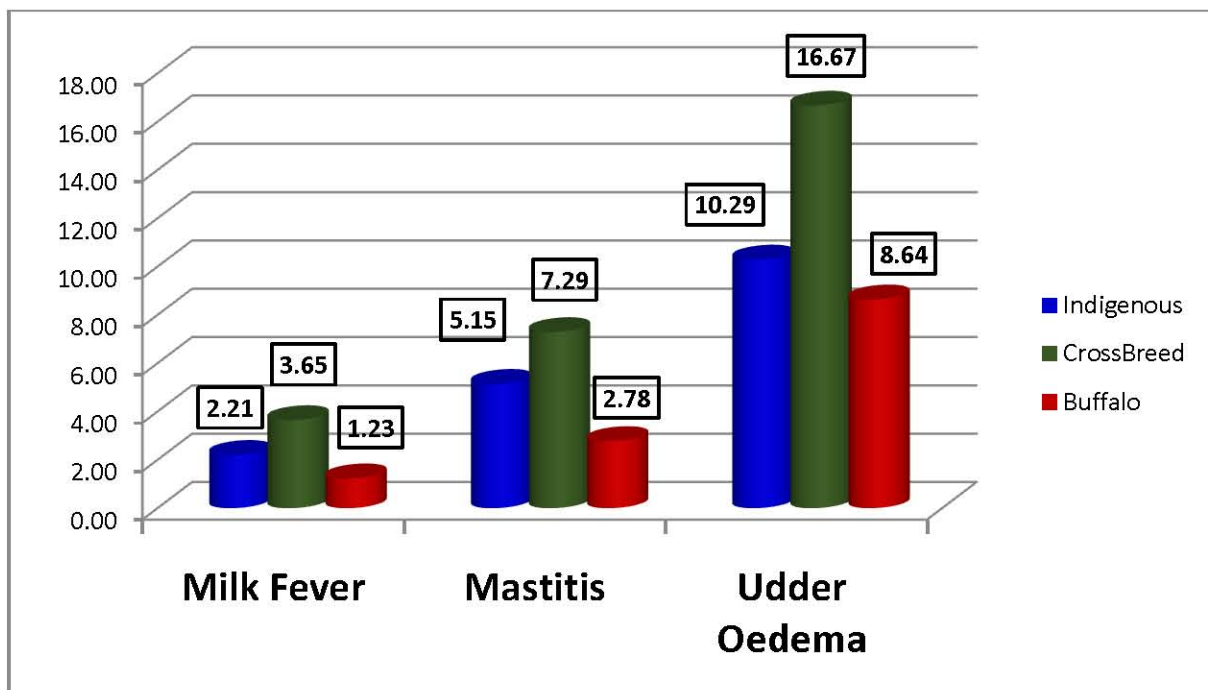
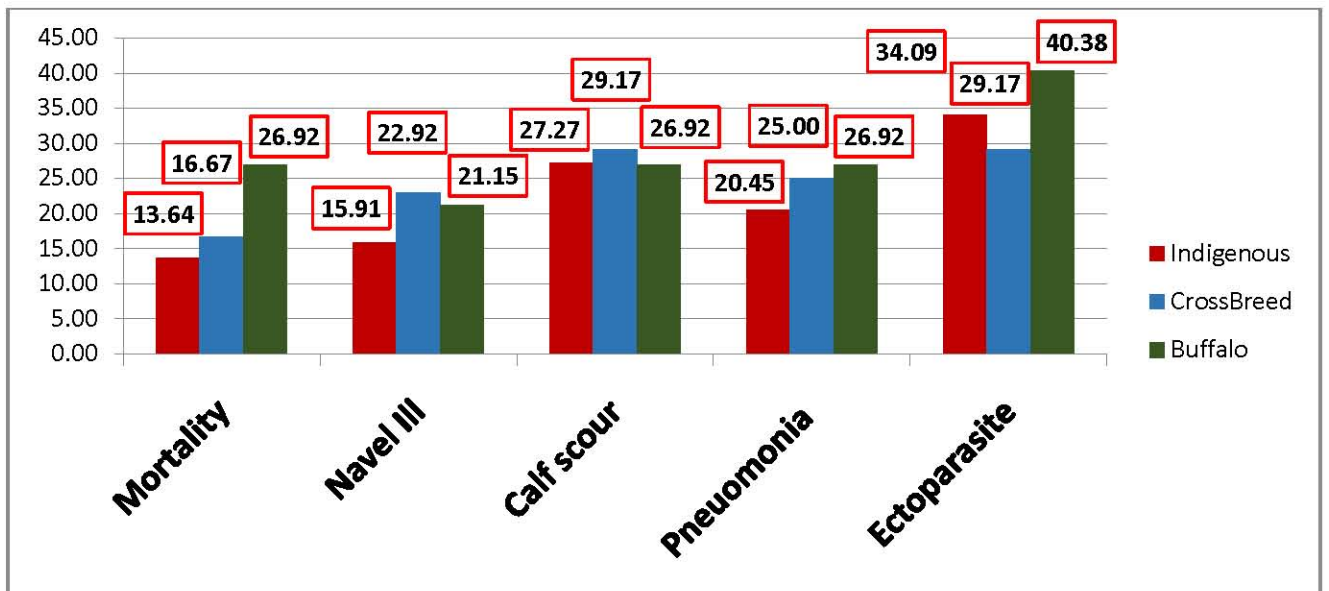


Figure 4.5.3: Incidences of various calf diseases in indigenous calves, crossbred calves and buffalo calves



It was further seen that the occurrence of mastitis is highest in crossbred animals. Overall it was seen that rates of occurrence of milk fever, mastitis and udder oedema were highest in crossbred cattle as compared to indigenous cattle and buffaloes and those were 3.65%, 7.29% and 16.67% respectively.

Table 4.5.2: Incidences of metabolic and other disorders in dairy animals of study area

S/No	Diseases	Indigenous	Crossbred	Buffaloes
1.	Milk fever	2.21	3.65	1.23
2.	Mastitis	5.15	7.29	2.78
3.	Udder Oedema	10.29	16.67	8.64

(All the values are in percentage)

In case of calf diseases, rates of occurrence of calf mortality, pneumonia and ectoparasitic infestation were highest in buffalo calves as 26.92%, 26.92% and 40.38% respectively and occurrence rates of navel ill and calf scour were highest in crossbred calves as 21.15% and 26.92% respectively.

Table 4.5.3: Incidences of various calf diseases in calves of the study area

S/No	Diseases	Indigenous	Crossbred	Buffaloes
1.	Calf mortality	13.64	16.67	26.92
2.	Navel ill	15.91	22.92	21.15
3.	Calf scour	27.27	29.17	26.92
4.	Pneumonia	20.45	25.00	26.92
5.	Ectoparasitic infestation	34.09	29.17	40.38

(All the values are in percentage)

4.6 Knowledge of dairy farmers about various transition period practices

Knowledge in the present study refers to the information and understanding the respondent has about the scientific practices during the transition period of the dairy animals. The developed knowledge test was administered to the respondents and it

was found that the respondents were having highest knowledge about the calf management practices during transition period(87.50%) followed by general management practices (81.82%), healthcare practices (75.00%) and feeding management (61.11%) respectively.

Table 4.6.1: knowledge of respondents regarding various transition period practices

S/No	Practices	Knowledge level
1.	Feeding	61.11%
2.	General management	81.82%
3.	Healthcare	75.00%
4	Calf management	87.50%
	Overall	76.36%

The knowledge scores of feeding practices (Table 4.6.2) during transition period were assessed and it is clearly indicated that the respondents were well aware about the reasons for reduction in feed intake during last trimester of pregnancy (81.00%), amount of concentrate mixture feeding to pregnant animals (72.00%) and important reason for not bringing the sudden change in feed of dairy animals.

The result also state that respondents have limited knowledge regarding feed additives to be incorporated in animal feed (52.00%), amount of mineral mixture fed to the animals (54.00%) and negative DCAD diet feeding for prevention of milk fever (53.00%) respectively.

Table 4.6.2: Ranking of the feeding practices based on the calculated knowledge score

S/No	Item	Knowledge score	Rank
1.	Steaming up means?	56	VI
2.	Amount of mineral mixture to be fed to dairy animals	54	VIII
3.	Common calcium preparations available in market for dairy animal	60	V

4.	How much concentrate mixture should be fed to the advanced pregnant animal?	72	II
5.	Feed additives fed during transition period are.....	52	IX
6.	Reasons for reduced feed intake by animals during transition period....	81	I
7.	Why sudden change of feed should not be done in dairy animals?	68	III
8.	For the treatment of infertility_____ is used as indigenous practice	61	IV
9.	Negative DCAD diet should fed to prevent milk fever in_____	53	VII

The knowledge levels of the respondents regarding recommended management practices are mentioned in Table 4.6.3. It is clearly evident that the knowledge among the respondents was highest in the areas like all the respondents were aware about the average gestation period of dairy animals. It was also revealed that majority of them were aware about correct method of milking the animals (94.00%) and right time and method of feeding colostrum to new born calves (84.00%). Respondent possess limited knowledge about age of disbudding (63.00%), consequences of inadequate exercise during dry period (70.00%) and appropriate duration of dry period (72.00%) respectively.

Table 4.6.3: Ranking of general management practices based on the calculated knowledge score

S/No	Item	Knowledge score	Rank
1.	The appropriate drying period should be _____ days before parturition	72	IX
2.	_____ bunk space is per advance pregnant cow should be	74	VIII
3.	Inadequate exercise during dry period leads to	70	X
4.	Parturition should occur within _____ hours of commencement of calving	84	IV
5.	In case of abnormal presentation or dystocia, farmer should immediately__	77	V
6.	Colostrum should be fed within _____ after the birth of the calf	84	III
7.	Appropriate age of disbudding the calf is	63	XI
8.	Correct method of hand milking is	94	II

9.	Correct method of drying for high yielding animals is	75	VII
10.	Average gestation period of cow is	100	I
11.	Advanced pregnant cows should be separated from other animals for _____	75	VI

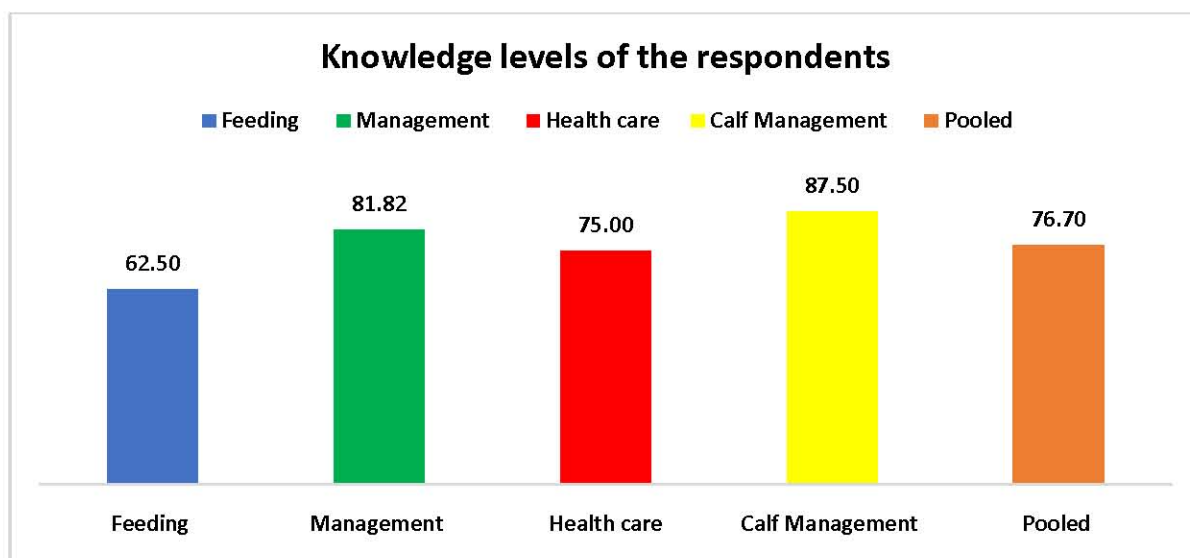
The study clearly state that most of the farmers possessed good knowledge about visual symptoms of mastitis (91.00%), causative factors of metritis (84.00%) and some were also aware about symptoms of milk fever. While comparatively less extent of knowledge was observed regarding importance of dry cow therapy (58.00%), deworming schedule in dairy animal's (61.00%) and factors for dystocia in dairy animals (63.00%) respectively.

Table 4.6.4: Ranking of the healthcare practices based on the calculated knowledge score

S/No	Item	Knowledge score	Rank
1.	In case of vaginal prolapse, the farmer should go for.....	72	V
2.	Predisposing factors for dystocia in dairy animals	63	VIII
3.	Calfhood vaccination is preferred for.....	71	VI
4.	Common symptoms of abortion in dairy animals are	72	IV
5.	Deworming should be carried out	61	IX
6.	The common predisposing factors for metritis are	84	II
7.	Dry cow therapy is _____	58	X
8.	Common visual symptoms of mastitis are	91	I
9.	Causative factors for anestrus are	69	VII
10.	Common symptoms of milk fever	77	III

The extents of knowledge on recommended calf rearing practices are tabulated in Table 4.6.5. It could be stated that the respondents of the study area were having 74.00 % extent of knowledge about importance and amount of feeding colostrums to new born calves. While their knowledge is limited in the areas of naval cord cutting

Figure 4.6.1: Knowledge level of respondents about practices during transition period of dairy animals



(68.00%) and initiation of hay feeding for proper development of rumen(68.00%) respectively.

Table 4.6.5: Ranking of calf management practices based on the calculated knowledge score

S/No	Item	Knowledge score	Rank
1.	Practice of naval cord cutting is done as	68	V
2.	Amount of colostrum to be fed to the calf per day	74	II
3.	First deworming of the calf should be done in	73	III
4.	For the proper development of the rumen, hay should be fed after	72	IV
5.	Colostrum is helpful in	74	I

Table 4.6.6 represents the correlation coefficients of socio personal variables of the respondents with their knowledge level.

Table 4.6.6: Correlation between various socio-personal variables of the respondents with their knowledge level

S/No	Variables	'r' Value
1.	Age	0.264
2.	Education	0.542*
3.	Experience	0.323
4.	Income	0.544*
5.	Land holding	0.432
6.	Herd	0.250
7.	Milk production	0.564*
8.	Milk consumption	0.172
9.	Milk sale	0.456
10.	Personal localite information sources	0.196

11.	Personal cosmopolite	0.526
12.	Adoption of practices	0.644*

** Significant at 0.01 level of probability, * Significant at 0.05 level of probability

The table 4.6.6 shows that the knowledge level of respondents is positively correlated with education, income, milk production and adoption of various management practices during transition period.

4.7 Adoption behaviour of farmers about various practices during transition period

Adoption of scientific practices about transition period was studied and results were presented in the table 4.7.1. The extent of adoption for management practices, feeding practices, healthcare practices and breeding practices were 46.86%, 53.20%, 46.00% and 51.00% respectively. The overall extent of adoption of practices among respondents was found to be 49.26%.

Table 4.7.1: Rate of adoption of various practices by the respondents during transition period of dairy animals

S/No	Practices	Adoption index
1.	Management	46.86
2.	Feeding	53.20
3.	Healthcare	46.00
4	Breeding	51.00
	Overall	49.26

The extent of adoption of recommended management practices were tabulated in Table 4.7.2. The results state that highest adoption was for practices like full hand milking method (62.00%) and washing of udder before milking (58.00%). It was also seen that lowest adoption was observed in practices like selection of dairy animals for breeding and production (26.00%) and separation of advanced pregnant animals from other animals (38.00%).

Figure 4.7.1: Extent of adoption by respondents about practices during transition period of dairy animals

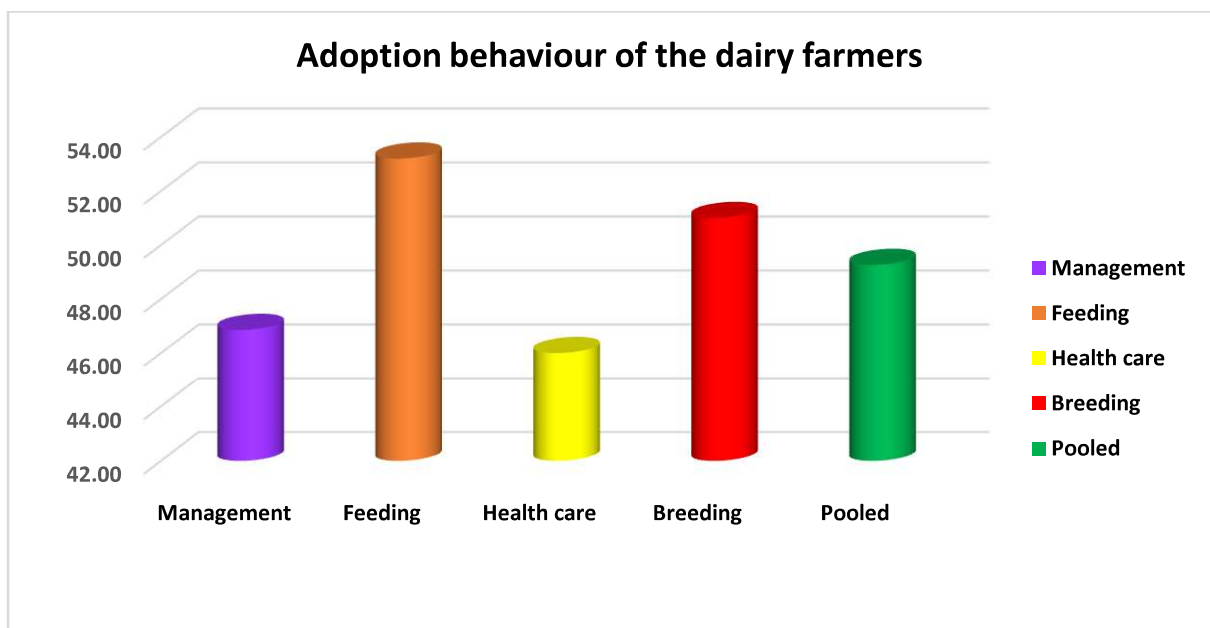


Table 4.7.2: Ranking of the management practices based on the calculated adoption index

S/No	Item	Adoption index	Rank
1.	Full hand milking method	62	I
2.	Udder cleaning before milking	58	II
3.	Deworming of calves	54	III
4.	Removal of fore milk during milking	48	IV
5.	Application of antiseptic to the naval of calf after birth	42	V
6.	Separation of advanced pregnant animals from other animals	38	VI
7.	Selection of dairy animals	26	VII

Inadequate nutrition is one of the single largest factors responsible for low milk production in animals. Therefore the adoption of scientific practices should be appropriate. The results about the adoption of feeding practices were tabulated in Table 4.7.3. The extent of adoption of concentrate mixture feeding to dairy animals was 76.00%, feeding of colostrum to newborn calves was 62.00% and mineral mixture feeding was 60.00% respectively. The practices having low adoption were feeding of extra concentrates to pregnant animals (48.00%) and balanced ration feeding to dairy animals (20.00%).

Table 4.7.3: Ranking of the feeding practices based on the calculated adoption index

S/No	Item	Adoption index	Rank
1.	Concentrate mixture feeding to dairy animals	76	I
2.	Feeding of colostrum to newborn calves	62	II
3.	Mineral mixture feeding	60	III
4.	Feeding of extra concentrates to pregnant animals	48	IV
5.	Balanced ration feeding to dairy animals	20	V

The findings presented in Table 4.7.4. revealed that majority of the respondents had adopted the practices like timely deworming of animals (54.00%), separation of diseased animals from healthy ones and prevention and control of ticks and mite infestation (52.00%) respectively.

Table 4.7.4: Ranking of the healthcare practices based on the calculated adoption index

S/No	Item	Adoption index	Rank
1.	Timely deworming of animals	54	I
2.	Separation of diseased animals from healthy ones	52	II
3.	Prevention and control of ticks and mite infestation	52	III
4.	Vaccination of animals	44	IV
5.	Treatment of anestrus, repeat breeding and other reproductive disorders by veterinary practitioner	44	V
6.	Cutting of naval cord and antiseptic solution application	40	VI
7.	Treatment of sick animals by veterinarians	36	VII

The extent of adoption regarding recommended breeding practices was presented in Table 4.7.5. The results state that breeding of animal by artificial insemination (72.00%), seeking help from veterinarian in case of difficult parturition (54.00%) and regular pregnancy diagnosis (52.00%) practices were ranked as first, second and third respectively. It was surprised to state that lowest adoption were for the practices for oestrus detection in animals (22.00%) and maintaining breeding record (18.00%) at farm.

Table 4.7.5: Ranking of the breeding practices based on the calculated adoption index

S/No	Item	Adoption index	Rank
1.	AI practice	72	I
2.	Seeking help from veterinarian in case of difficult parturition	54	II
3.	Pregnancy diagnosis	52	III

4.	Appropriate period of AI after calving	52	IV
5.	Estrus detection methods in animals	22	V
6.	Breeding record maintenance	18	VI

Table 4.7.6 shows that the adoption of practices by the respondents is positively correlated with the independent variables like education, income, herd size and milk production of the respondents.

Table 4.7.6: Correlation between various socio-personal variables and adoption behaviour of the respondents.

S/No	Variables	'r' Value
1.	Age	0.143
2.	Education	0.744*
3.	Experience	0.222
4.	Income	0.642*
5.	Land holding	0.234
6.	Herd	0.530*
7.	Milk production	0.504*
8.	Milk consumption	0.272
9.	Milk sale	0.234
10.	Personal localite information sources	0.019
11.	Personal cosmopolite information sources	0.456

** Significant at 0.01 level of probability, * Significant at 0.05 level of probability

Therefore it can be concluded that, with increase in the income, herd size and milk production of the animals there will be higher adoption of recommended scientific practices by the farmers.

4.8 Constraints faced by respondents during transition period of dairy farmers and in adoption of practices

Constraints faced by farmers during transition period of dairy animals were the problems perceived by the dairy farmers during transition period. Some problems were identified based on the responses of the dairy farmers in the study area and they were asked to rank these identified problems or constraints according to their perception. After that, rank based quotient (RBQ) method was used to determine the hierarchy of the constraints faced by the dairy farmers in the study area. In the present study it was observed that, major constraints faced by the respondents regarding health care of the animals were distant location of veterinary hospitals from remote villages (61.42), occurrence of repeat breeding in the dairy animals (58.28) and higher incidence of reproductive disorders in milch animals (54.28) were ranked first, second and third respectively.

Table 4.8.1: Ranking of constraints faced by the respondents regarding healthcare of the animals

S/No	Item	R.B.Q. value	Rank
1.	Distant location of veterinary hospitals from getting treatment	61.42	I
2.	Repeat breeding	58.28	II
3.	High reproductive disorders in milch animals	54.28	III
4.	Non- availability of services of veterinary doctor regularly	54.00	IV
5.	High cost of veterinary medicines	52.28	V
6.	Calf mortality	44.28	VI
7.	Improper treatment services	41.14	VII

Constraints faced by respondents in adoption of recommended practices in the area of feeding, breeding, healthcare and calf rearing practices were presented in table 4.8.2. The results revealed that constraints such as inadequate knowledge of diseases and their control measures (64.28), problem of disposal of old/ disabled animals (61.71), high cost of feed and non- availability of feed during summer (59.14) and non-

availability of timely AI facility (57.42) were ranked first, second, third and fourth respectively.

Table 4.8.2: Ranking of constraints faced by the respondents regarding rearing of the animals

S/No	Item	R.B.Q. value	Rank
1.	Inadequate knowledge of diseases and their control measures	64.28	I
2.	Problem of disposal of old/ disabled animals	61.71	II
3.	High cost of feed and non- availability of feed during summer	59.14	III
4.	Non- availability of timely A.I. facility	57.42	IV
5.	Inadequate knowledge of balanced ration	55.71	V
6.	Inadequate knowledge of newborn calf management	44.57	VI
7.	Low milk production in summer	41.42	VII

Apart from these constraints inadequate knowledge about management practices of new-born calf and inadequate information about maintaining milk production during summer were major constraints faced by respondents.

A decorative border composed of black and grey floral and butterfly motifs. The border features intricate scrollwork, leaves, and three butterflies with detailed wing patterns, arranged in a rectangular frame around the central text.

Discussion

Chapter - 5

Discussion

The data was collected from the selected respondents of Mathura district and the results obtained after the analysis of collected data are included in this chapter. The findings are presented in following heads-

- 5.1.Socio- economic profile of the dairy farmers
- 5.2.Management practices followed by the respondents
- 5.3.Productive and reproductive parameters of dairy animals
- 5.4.Indigenous traditional knowledge of the dairy farmers
- 5.5.Incidence of various reproductive diseases during transition period
- 5.6.Knowledge pattern of dairy farmers about various transition period practices
- 5.7.Adoption behaviour of farmers about various practices during transition period
- 5.8.Constraints in adoption of improved practices among dairy farmers

5.1.Socio- economic profile of the dairy farmers

5.1.1. Age

The data about age of the respondents revealed that majority 48.00% of the respondents belong to old age group, 32.00% belong to middle age group and 20.00% belong to young age group. It was observed that the range of medium age of the respondent in the study area ranges from 36 to 46 years which shows that they have were having a quite good experience in rearing the animals. Many other researchers also stated that majority of the dairy farmers belonged to middle age group 68.00% (Panchabhai *et al.* 2017) and 63.80% (Lohakare *et al.* 2013)

5.1.2. Education

The results indicate that majority of the respondents (72.00%) were having middle or above level of education. Thus the respondents were experienced and educated. Various type of written communication can be utilized to enhance the capacity of respondents in scientific dairy farming. The result of Mahesh *et al.* (2020) also indicates that 31.00% of the farmers had high school education, 25.00% of the

farmers had middle school, 15.00% of them were Pre-University level of education. Panchabhai *et al.* (2017) reported that 38.50, 20.50 and 20 per cent of the respondents were educated upto high school followed by middle school and primary school level, respectively,

5.1.3. Experience in dairy farming

The 80.00% of the respondents in the study areas have more than 12 years of experience in rearing dairy animals. The findings can conclude that the respondents had developed a decent experience in all aspects of dairying farming. They were rearing dairy animals to fulfil their day-to-day need of the milk as well as other products. The farmers in the study area with such experience follow the traditional practices which need to timely upgrade for doubling their income. Dabhi *et al.* (2018) also reported that most of the dairy owners (66.66 per cent) had medium level of experience in dairy farming. Similarly, Gopi *et al.* (2017) also observed that more than three-fifth (64.16 per cent) of the farmers had high dairy farming experience.

5.1.4. Total Income

Total income of the respondents was further classified into three groups on the basis of their income viz., low (<178135), Medium (178135-241872) and High (>241872). The data shows that out of total respondents, 12.00% were having low level of income, 44.00% were having medium income level and 44.00% were having high level of income. Dabhi *et al.* (2018) in Surat district of South Gujarat reported that majority i.e., 60.83 per cent of the crossbred cattle owners belonged to medium annual income category followed by 21.66 and 17.50 per cent to low and high annual income categories, respectively.

5.1.5. Land Holding

The operational land holding of the respondents in the study area were also categorized and it was revealed that semi- medium were highest accounting for 64.00%, followed by medium farmers (20.00%) and small farmers (16.00%) respectively. Kord (2020) in peri urban area of Aligarh city stated that about 48.51 percent of respondent involved in dairy farming belong to marginal and small farmers with less than one hectare and one to three hectares of land respectively. Sabapara *et*

al. (2016) also indicated that majority of the respondents were falling under marginal to small categories farmers with small herd size. They also stated that herd size of dairy animal owners had significant positive correlation with adoption of improved dairy husbandry practices.

5.1.6. Herd Size

The herd size of the respondents ranges from 4-10 animals and majority of them have more than five animals in their herd respectively. Buffalo was the most preferred animal of the respondents in the study area as their milk is richer in fat and protein than that of dairy cattle. The milk consumption in the local market is also high making the farmers to rear high yielders for getting additional source of income. The respondents maintaining adequate number of animals in their herd had significant positive correlation with adoption of improved dairy husbandry practices. Sumanpreet *et al.* (2017) found that most (49.37%) of the respondents were having small (> 5 animals) herd size and around 38.75% household were producing less than fifteen liters of milk/day.

5.1.7. Milk Production

The average milk production of the respondents was 4.67 litres/day. The results revealed that majority of the farmer produces less than 16 litre milk per day, while some of them were able to produce milk up to 33 litres/day from their dairy animals. The average milk productivity of dairy animals at the time of investigation in the study area was 3.070 and 6.04 litre for cow and buffalo.

5.1.8. Milk consumption

This section reveals about the daily household milk consumption of the respondents. It was revealed that majority of the respondents belong to the high milk consumption with more than 4.5 litres /day. The per capita milk consumption of the milk was 540 g/day which is higher than the state and national per capita average of 340 and 420 g/day.

5.1.9. Disposal Pattern

The extra milk which was not consumed was sold to the local milk vendors in the village, thus acting as a source of income generating activity. It was observed that 25.56% of milk is sold to local customers, 26.49% is sold to local milk vendors and 27.32% is sold to local sweet shops. The price of the cow milk varies from 30-35 Rs/litre which the buffalo milk ranges from Rs 40-48 Rs/litre.

5.1.10. Information sources

This section reveals various sources of information from where the respondents may collect information. The study reveals that 24.00% respondents were receiving low information through personal localite sources followed by 24.00% were receiving medium information and 52.00% were receiving high information. The respondents gain the knowledge from paravets, LSA/Stockman and Veterinary Officers who act as major cosmopolite channels. Personal cosmopolite channel of information showed that 56.00% of farmers were in high category. Whereas, 28.00% in low and 16.00% were in medium category respectively. It was also revealed that majority of the respondents (56.00%) were receiving medium information through impersonal cosmopolite sources in the study area. The study of Mahesh *et al.* (2020) indicated that more than half (54.00 %) of the farmers belonged to medium extension contact. Whereas, 34.00 per cent of them belonged to low extension contact and only 11.00 per cent were had high extension contact. Rahman and Gupta (2015) also proved that majority (52%) of the dairy farmers were possessing medium extension contact followed by the ones having low extension contacts (32%) and high extension contacts (16%). In contrary to these the study of Kankarne *et al.* (2017) observed that nearly 71.75% of the respondents were belonging to the category of utilizing low sources of information while only 9% were falling into the category of utilizing high source of information.

5.1.11. Existing management Practices followed by the respondents

This section reveals the various feeding, other management and calf management practices followed by the respondents. The frequencies and percentages of various feeding, other management and calf management practices were calculated based on collected data and presented as follows-

5.1.11.1. Feeding practices

Dairy animals in the study area were reared in intensive and stall feeding farming system. Majority of the respondents in the study areas are group feeding legume & Non legume and grass to animals. Nearly 64.00% of the respondents offer chaffed fodder to their animals and remaining 36.00% offer it as such. Chemical processing like urea treatment and silage making was not at all adopted by the respondents. No feeding standards were followed by majority (68.00%) of the respondents for feeding their animals and 32.00% respondents were using milk production as the criteria for feeding the animals. Along with this, most of them are using home produced concentrate mixture for the animals while only 20.00% respondents were using compound cattle feed for their animals. It was observed that only lactating animals were given cereal by products and concentrate feeds (oil cakes, brans, pulse chunies etc.) since farmers received immediate returns. Similar results were state by Devasena *et al.*, (2015) that most of the farmers were feeding single or two concentrate ingredients independently or in combination (45%) and few farmers were using commercially available concentrate mixtures (15%). Inclusion of common salt was not a regular practice in the cattle feed while mineral mixture was used occasionally.

5.1.11.2. General management practices

The result of exiting management practices followed by the respondents observed that 98.00% of the respondents were not aware about the dry cow therapy and therefore not following it. Intermittent milking is adopted by only 20.00% respondents for drying their animals while 40.00% and 40.00% respectively were using incomplete milking and abrupt stoppage of milking for drying their animals. All the other cleanliness related practices were adopted by majority of the respondents except washing the animal before milking which is not adopted by 76.00% of the farmers. Ranjana *et al.*, (2016), also stated that majority of the respondents had always adopted cleaning of udder before milking and use offull hand method of milking while sometimes adopted washing the buffalo before milking. Proper disposal of placenta is not followed by 88.00% of the respondents while it is adopted by only 12.00% respondents. Washing of hind quarter after calving was performed by respondents. Similar results state by Ghanshyam and Vishnubhai, (2021) revealed that majority (98%) of the respondents washed buffalo's hind quarters after drop of placenta. Bu the finding was contrary to the findings of Rathore *et al.* (2010) who found that only

18.5% of the respondents followed practice to washed cow's hind quarters after drop of placenta.

5.1.11.3. Health care practices

Data presented about the healthcare practices reveals that the regular deworming was followed by only 20.00% of the respondents and practices for ectoparasitic control were followed by 52.00% of the respondents. While the study of Ghanshyam and Vishnubhai, (2021) revealed that majority (80%) of dairy animal's keepers adopted various practices like dusting, spraying and injectable drugs for control of ectoparasites in study areas. Vaccination for prevention of infectious diseases is followed by majority (60.00%) of the respondents. Another major issue of concern is that only 24.00% of the respondents receive treatment from registered veterinary practitioner in case of difficult parturition or retention of foetal membranes and all the remaining respondents treat their animals with the help of livestock supervisors or quacks. The results are in accordance with the study of Ghanshyam and Vishnubhai (2021) that only 38% respondents treated their sick buffaloes by qualified veterinarians. This might be due to distance location of hospitals in the study area. Practice of isolation of sick animals is also not followed by majority of farmers due to lack of awareness of the buffalo keepers regarding isolation and segregation process to be followed in order to control the spread of contagious diseases in the herd or may be due to lack of proper availability of space.

5.1.12. Productive and reproductive parameters of dairy animals

5.1.12.1. Productive parameters of dairy animals

i. Average Daily Milk Yield (litres)

Daily milk yield of dairy animals is an important indicator showing the performances of dairy animals. The result indicates that the average daily milk yield of Indigenous cow, Crossbreed cow and Buffalo was 2.8 ± 1.34 , 6.31 ± 1.43 and 5.50 ± 0.83 litre/day/animal respectively. These findings are in close accordance with the findings of Meena *et al.* (2016) who observed that the average daily milk yield of buffaloes, cross breed cattle indigenous cattle was 6.01 ± 0.5 , 5.79 ± 0.56 , and 5.45 ± 0.61 litre/day/animal respectively and the overall average daily milk yield was estimated to be 5.75 ± 0.65 litre/day/animal.

ii. Lactation Length

Lactation length was mainly influenced by the parity of lactation. The optimum lactation length (305 days) of the dairy animals is required to make it a profitable entity for the farmers. The results revealed that the lactation length of Indigenous cow, Crossbreed cow and Buffalo was 224.5 ± 22.30 , 220.91 ± 17.10 and 226.60 ± 10.14 days/ animal respectively. This finding is in accordance with the findings of Patel *et al.* (2020) who indicated that lactation lengths of indigenous cow, crossbred cow and buffaloes were 250.71 ± 18.46 , 215.63 ± 31.82 , 242.8 ± 30.33 respectively. While this average is less than the average lactation length stated by Kale *et al.* (2018).

iii. Lactation Milk Yield

Lactation milk yield of dairy animals is one of the indicators of performances of dairy animal. The result from the study shows that the lactation milk yield of Indigenous cow, Crossbreed cow and Buffalo was 912.75 ± 292.00 , 1457.51 ± 315.73 and 1322.24 ± 182.24 litre/animal respectively. Lactation milk yield can also be affected if the peak yield of animals occurs in summer season when there is feed and fodder scarcity. This finding is on the contrary to the finding of Meena *et al.* (2015) who revealed that lactation milk yield of Buffalo, Crossbred cow, Indigenous cow were 1587.60 ± 113 , 2091.35 ± 145 and 964.65 ± 98 litre/ animal respectively.

iv. Peak Yield

The results revealed that the peak yield of Indigenous cow, Crossbreed cow and Buffalo was 5.65 ± 1.39 , 9.39 ± 1.56 and 6.72 ± 0.64 liter/animal respectively. It was generally observed in the second month of lactation in cattle and buffalo. The peak yield of animals in the present study was far less than the findings of Manjusha *et al.* (2016) who indicated that the average peak yield of crossbred cow, buffalo and indigenous cow was 13.78 ± 4.8 , 12.06 ± 3.65 and 8.16 ± 2.8 litres/animals respectively in Karnal district of Haryana.

v. Dry Period

Dry period of 60 days is recommended and found optimum in terms of getting good lactation milk yield. The dry period of Indigenous cow, Crossbreed cow and Buffalo was found to be 140.5 ± 22.30 , 144.09 ± 17.10 and 138.40 ± 10.14 days/animal respectively. This finding is on the contrary to the findings of Kale *et al.* (2018) who

stated that average dry period of buffalos was 184.06 ± 16.56 , for crossbred cows it was 113.07 ± 20.22 and for indigenous cows it was 130.50 ± 14.66 in Maharashtra state.

5.1.12.2. Reproductive parameters of dairy animals

i. Age at Puberty

Age at puberty of the dairy animals was also recorded and it was found that for Indigenous cow, Crossbreed cow and Buffalo it was 30.05 ± 2.09 , 18.68 ± 1.49 and 22.52 ± 2.14 months/ animal respectively. Sattar *et al.* (2005) indicated that average age at maturity in Holstein Friesian females was 652.70 ± 6.98 days, ranging from 356 to 1077 days.

ii. Age at First Calving (Months)

The dairy animal having slow growth in life will be having delayed age at first calving. Increase in age at first calving reflect the poor maintenance of heifer by the farmers and thus it affects the profitability of dairy future. In the present study it was observed that the age at first calving of Indigenous cow, Crossbreed cow and Buffalo was 43.55 ± 2.70 , 37.82 ± 2.70 and 55.47 ± 2.73 months/ animal respectively. While, Manjusha *et al.* (2016) observed that the age at first calving of crossbred cow, buffalo and indigenous cow were 924.34 ± 61.9 , 1408 ± 128.85 and 1090 ± 192 days/ animal respectively in Karnal district of Haryana. Also, Sinha *et al.* (2009) observed that age at first calving in cattle and buffaloes was 47.5 ± 1.95 months and 56.53 ± 1.20 months respectively.

iii. Service Period

Service period of the dairy animals should be minimum so that the objective of getting a calf every year can be achieved. The data reveals that the service period of Indigenous cow, Crossbreed cow and Buffalo was 119.95 ± 8.21 , 126.97 ± 6.60 and 193.77 ± 10.20 days/animal respectively. This finding is in consonance with the findings of Yadav *et al.* (2020) who revealed that more than 82 per cent of Murrah buffaloes had <120 days as service period whereas 8.4 & 8.7 per cent of buffaloes fell under medium (121-140 days) and a long service period categories (>141 days) in Jind district which comes under Murrah buffalo breeding tract in Haryana. On the

contrary, Jamal *et al.* (2018) stated that service period for Murrah buffaloes was 147.85 ± 2.12 days.

iv. Number of Services Per Conception

Services per conception of Indigenous cow, Crossbreed cow and Buffalo was 4.05 ± 1.05 , 3.88 ± 1.29 and 4.13 ± 1.28 days/animal respectively. Lower the service per conception helps to keep the optimum calving interval and farmer can achieve calf a year target. The finding of Roy *et al.* (2020) is contradictory to the findings of the study which stated that number of services per conception in Siri-pure and Siri-graded cattle were 1.30 ± 0.06 and 1.29 ± 0.05 respectively. Also, contradictory findings were presented by Kale *et al.* (2018) who stated that average services per conception of buffalo were 2.24 ± 0.78 , 2.66 ± 0.83 and 2.80 ± 0.69 , crossbred cattle were 2.34 ± 0.77 , 2.38 ± 0.75 and 2.45 ± 0.73 and Indigenous cattle were 2.05 ± 0.79 , 2.27 ± 0.56 and 2.41 ± 0.62 in Haryana, Maharashtra and Odisha states, respectively.

V. Calving Interval

Calving interval represent the performances of dairy animals. Present study reveals that the calving interval of Indigenous cow, Crossbreed cow and Buffalo was 508 ± 20.55 , 434.33 ± 21.19 and 529.52 ± 12.28 days/animal respectively. This finding is in accordance with the findings of Roy *et al.* who reported that the calving interval of Siri-pure and Siri-graded cattle was 463.67 ± 3.40 days 452.71 ± 2.79 days respectively and contradictory to the finding of Sinha *et al.* (2009) who stated that calving intervals of cattle and buffaloes were 18.0 ± 1.09 months and 16.24 ± 0.53 months respectively.

5.1.13. Indigenous traditional knowledge of the dairy farmers

Indigenous traditional knowledge is the local knowledge that is unique to a particular culture or society where it passes from generation to generation. It is the knowledge that people have gained through inheritance from their ancestors. Here, we are concerned with the knowledge of responding farmers regarding preventive measures and treatment of various diseases in dairy animals during transition period. It was observed that the respondent uses jaggery and water solution mostly for expulsion of

foetal membrane. Apart from practicing of feeding methi (*Trigonella foenumgraecum*) and jaggery were also followed by most of the respondent.

Metritis, which is the inflammation of uterus in dairy animals and farmers uses their traditional knowledge to counter the disorder by feeding Samudrihaga and Kashiphal (*Curcubitmo schotopoir*) in appropriate proportion. Chand *et al.* (2021) revealed that majority of farmers fed boiled methi grain to dairy animals in morning (empty stomach) at the rate of one kg for five days for correcting the case of late maturity and anoestrus. At the same time a handsome number of farmers were feeding bajara with jiggery, and bajara with guar. Sharma *et al.* (2019) stated that for treatment of repeat breeding some livestock owners fed 250 gm overnight soaked ajwain (*Trachyspermum ammi*) to animal for five days. Along with this, for treatment of anoestrus 10 gm seed of kayfal (*Myrica nagi*) fed to animal for continuous three days. The roots of *Dipsacus inermis* (Pilha) are mashed (1–2 kg) and cooked in water and given orally to expel placenta as post-delivery treatment in cattle. This has shown quick results and placenta is removed. Cooked roots of *Dipsacus inermis* (Pilha) are also used to cure prolapse of uterus (Khan *et al.*, 2021). Sarswat and Purohit (2020) stated that livestock owners used *Myrtus communis* for the treatment of Prolapse of uterus and *Nigella sativa*, *Pedaliium murex* for the treatment of puerperal and uterine diseases.

5.1.14. Incidences of various diseases during transition period of dairy animals

Incidence of diseases is evaluated to measure the occurrence of the various disease events within definite time period in a specific animal population. The results the incidences of reproductive disorders like dystocia, retention of foetal membrane, metritis and prolapse. The result shows that the incidence of RFM was highest in crossbreed animal followed by buffalo and indigenous animals. The incidence of prolapse was highest in the buffalo (7.41%). The study conducted by Dharmesh *et al.*, 2012 also state that incidence of retention of placenta was more in buffaloes (8.46%) followed by cross breed (2.13%). While Madhu *et al.*, 2013 revealed that occurrence of pre partum complications was 12.83%, whereas the occurrence of postpartum complications was 45.36. The study from Haryana also reported that that the rates of occurrence of various reproductive disorders were 26.33% for retained placenta, 23.66 for metritis, 17.00% for dystocia and 16.00% for vaginal/uterine

prolapse (Meena and Malik, 2009). The rate of abortion and retained placenta was highest i.e., 56.00% and 50.00% respectively in large farms (more than 10 animals) as compared to small and medium farms (Deka *et al.*, 2021).

The results of metabolic disorder incidence reveal that the occurrence of milk fever was 2.21, 3.65 and 1.23 in indigenous, crossbreed and buffalo respectively. It was further seen that the occurrence of mastitis is highest in crossbreed animals. Overall, it was seen that rates of occurrences of milk fever, mastitis and udder oedema were highest in crossbred cattle as compared to indigenous cattle and buffaloes which may be attribute by their higher milk production. Nimbalkar *et al.* (2020) found out that nearly 12.05% of the dairy animals in the state of Punjab were suffering with subclinical mastitis. According to Van Saun and Sniffen (2014), out of the total periparturient metabolic diseases, subclinical metritis and subclinical ketosis are having high rate of incidence as 37-74% and 26-55% respectively.

In case of calf diseases, rates of occurrence of calf mortality, pneumonia and ectoparasitic infestation were highest in buffalo calves as 26.92%, 26.92% and 40.38% respectively and occurrence rates of naval ill and calf scour were highest in crossbred calves as 21.15% and 26.92% respectively.

5.1.15. Knowledge pattern of dairy farmers about various transition period practices

Knowledge in the present study refers to the information and understanding the respondent has about the scientific practices during the transition period of the dairy animals. The data reveals that the respondents were having highest knowledge about the calf management practices (87.50%) followed by general management practices (81.82%), healthcare practices (75.00%) and feeding management (61.11%). But the study of Gunaseelan *et al.*, 2018 state that more than half of the dairy farmers in their area of research possessed medium level of knowledge in all components of improved dairy management practices. Similarly Sabapara *et al.* (2013) observed in Gujarat that the knowledge about different aspect of improved dairy husbandry practices of feeding, breeding, management and healthcare were 50.88, 80.93, 55.60 and 63.57, respectively.

The knowledge scores of feeding practices clearly indicated that the respondents were well aware about the reasons for reduction in feed intake during last trimester of pregnancy (81.00%), amount of concentrate mixture feeding to pregnant animals (72.00%) and important reason for not bringing the sudden change in feed of dairy animals. The result also state that respondents have limited knowledge regarding feed additives to be incorporated in animal feed (52.00%), amount of mineral mixture fed to the animals (54.00%) and negative DCAD diet feeding for prevention of milk fever (53.00%) respectively. This may be due to the fact that feeding of feed additives, mineral mixture and negative DCAD diet is not followed by the respondents due to lack of knowledge regarding scientific feeding of dairy animals to them. These findings are on the contrary to the findings of Kavithaa *et al.* (2020) which stated that the respondents had highest knowledge regarding mineral mixture feeding to the animals. The knowledge levels of the respondents regarding recommended management practices state that the knowledge among the respondents was highest in the areas like all the respondents were aware about the average gestation period of dairy animals, correct method of milking the animals and right time and method of feeding colostrum to new born calves. Respondent possess limited knowledge about age of disbudding (63.00%), consequences of inadequate exercise during dry period (70.00%) and appropriate duration of dry period (72.00%) respectively. This may be because the practice of disbudding is not followed at field level as it is considered brutal and unnatural. Also, drying of animal is not followed as lactation length itself is less than the ideal period.

The study clearly state that most of the farmers possessed good knowledge about visual symptoms of mastitis (91.00%), causative factors of metritis (84.00%) and some were also aware about symptoms of milk fever. While comparatively less extent of knowledge was observed regarding importance of dry cow therapy (58.00%), deworming schedule in dairy animal's (61.00%) and factors for dystocia in dairy animals (63.00%) respectively. In contrary to this Kavithaa *et al.* (2020) stated that knowledge regarding symptoms of metabolic disease like Milk fever, Ketosis etc was 75.00%.

The extents of knowledge on recommended calf rearing practices revealed that the respondents of the study area were having 74.00 % extent of knowledge about importance and amount of feeding colostrums to new born calves. While their

knowledge is limited in the areas of naval cord cutting (68.00%) and initiation of hay feeding for proper development of rumen (68.00%) respectively. It is clearly mentioned there that knowledge in the areas of naval cord cutting and initiation of hay feeding for proper development of rumen was lowest. This may be because naval cord cutting is not followed by the farmers at field level as it falls off after drying and lack of knowledge of scientific feeding of calves to the respondents. The results are in accordance with Kavithaa *et al.* (2020) stated that almost all (96.67 %) of dairy farmers in their study area possessed complete knowledge about colostrum feeding to newly born calf and respondent possess knowledge for prevention of calf scour / navel ill was 70.00%.

The knowledge level of respondents is positively correlated with education, income, milk production and adoption of various management practices during transition period. Similarly Sharma *et al.* (2009) revealed that there is significant relation at 1% level of probability between education and knowledge level of dairy farmers.

5.1.16. Adoption behaviour of farmers about various practices during transition period

Adoption of scientific practices about transition period was studied and results state that overall extent of adoption of practices among respondents was found to be 49.26%. The adoption rate of newer technologies varies from place to place and region to region which is chiefly depends upon the socio- economic status of the community and community participation (Surkar *et al.*, 2014). The result state that the extent of adoption for management practices, feeding practices, healthcare practices and breeding practices were 46.86%, 53.20%, 46.00% and 51.00% respectively. Singh *et al.* (2010) state that landless dairy farmers had significantly higher adoption in health care as compared to other dairy farming practices like breeding, feeding and dairy management and minimum adoption of feeding practices as they were not growing green fodder of their own.

The extent of adoption of recommended management practices were highest in full hand milking method (62.00%) and washing of udder before milking (58.00%). It was also seen that lowest adoption was observed in practices like selection of dairy animals for breeding and production (26.00%) and separation of advanced pregnant animals from other animals (38.00%). Asiya and Girigan (2019) found out during their study that none of the respondents were milking their animals in separate and

dry places. However, all respondents were regularly washing udder before milking, While Surkar *et al.* (2014) observed that about 60.83 per cent respondents do not clean animals and their shed before milking.

The extent of adoption of concentrate mixture feeding to dairy animals was 76.00%, feeding of colostrum to newborn calves was 62.00% and mineral mixture feeding was 60.00% respectively. The practices having low adoption were feeding of extra concentrates to pregnant animals (48.00%) and balanced ration feeding to dairy animals (20.00%). Similar finding were made by Meena *et al.* (2012) that feeding colostrum to new born calf is highly adopted management practice among all management practices. Likewise Singh *et al.* (2021) also stated that mineral mixture and concentrate feeding are least practised and are fed only after the recommendation by Veterinary doctor or any other person.

The adoption of healthcare practices revealed that majority of the respondents had adopted the practices like timely deworming of animals (54.00%), separation of diseased animals from healthy ones and prevention and control of ticks and mite infestation (52.00%) respectively. The study of Sathiadhas (2000) in Kerala observed that extent of adoption of mastitis prevention measures is 33.33%.

The extent of adoption regarding recommended breeding practices state that breeding of animal by artificial insemination (72.00%), seeking help from veterinarian in case of difficult parturition (54.00%) and regular pregnancy diagnosis (52.00%) practices were ranked as first, second and third respectively. The study of Yadav and Naagar (2021) revealed that majority of the dairy farmers (85.8%) had adopted artificial insemination for breeding of their animals. While the study of Jadhav *et al.* (2021) indicated that more than half of the dairy farmers (55.00%) had not adopted the practice of treatment of infected animal by a veterinarian. Likewise, Sachan *et al.* (2016) stated that treatment of repeat breeding and anestrous cases by veterinarians was least adopted and burying dead animals after death by contagious disease was second least adopted with the adoption rate of only 2.50% and 3.33% respectively.

The adoption of practices by the respondents is positively correlated with the independent variables like education, income, herd size and milk production of the respondents. Therefore it can be concluded that, with increase in the income, herd size and milk production of the animals there will be higher adoption of recommended scientific practices by the farmers. While Lohakare *et al.* (2013) indicated that with increase in age, there was co-responding decrease in adoption

level of respondent about animal husbandry practices. On the other hand, higher is the milk marketed by cattle owners greater is the increased annual dairy income which enable to farmers to adopt high-cost technologies. They also reported that utilization of information sources showed positive and highly significant relationship with the adoption of animal husbandry practices. Similarly Panchabhai *et al.* (2017) reported that out of all the selected characteristics of dairy farmers, social participation exerted highest positive correlation coefficient ($P < 0.01$) with extent of adoption of animal husbandry practices. Variables like education, herd size and sources of information had positive significant relationship ($P < 0.05$) with extent of adoption whereas age, family size, annual income and risk orientation had positive non-significant relationship with extent of adoption of animal husbandry practices.


5.1.17. Constraints in adoption of improved practices among dairy farmers

Constraints faced by farmers during transition period of dairy animals were the problems perceived by the dairy farmers during transition period. In the present study it was observed that, major constraints faced by the respondents regarding health care of the animals were distant location of veterinary hospitals from remote villages (61.42), occurrence of repeat breeding in the dairy animals (58.28) and higher incidence of reproductive disorders in milch animals (54.28) were ranked first, second and third respectively.

Sabapara *et al.* (2011) also observed that the constraints faced by respondents related to the healthcare were high cost of veterinary medicine (80.50%) followed by problem of metabolic disorders (73.50%), non-availability of services of veterinary doctor regularly (17%) and distant location of veterinary hospital (3%). Similarly, Surkar *et al.* (2014) found that poor knowledge about scientific animal husbandry practices and dairy farming was the most important constraint faced by the dairy farmers in adoption of improved practices for quality milk production. The major constraints faced by the dairy farmers as stated by Meena *et al.* (2016) were lack of good bredable bulls (88%) and lack of A.I. centre, ill equipped A.I. centre, lack of service at A.I. centre, distant location of veterinary hospital (86%). Patel and Ponnusamy (2019) also stressed on that Veterinary facilities during emergency hours needs improvement. They further state that poor conception rate with AI in dairy animals were the major constraints perceived by the dairy farmers. Patel *et al.* (2016)

found that lack of knowledge of improved breed of cattle/buffalo and lack of trained person for artificial insemination were the major issues of concern in adoption of the breeding practices by the farmers.

Constraints faced by respondents in adoption of recommended practices in the area of feeding, breeding, healthcare and calf rearing practices revealed that constraints such as inadequate knowledge of diseases and their control measures (64.28), problem of disposal of old/ disabled animals (61.71), high cost of feed and non- availability of feed during summer (59.14) and non-availability of timely AI facility (57.42) were ranked first, second, third and fourth respectively. Apart from these constraints inadequate knowledge about management practices of newborn calf and inadequate information about marinating milk production during summer were major constraints faced by respondents. Patel *et al.* (2016) found that lack of knowledge of about availability of cheap and quality green fodder round the year was major constrain in adoption of recommended feeding practices. Chinnadurai *et al.* (2002) revealed that the major constraints related to feeding of dairy animals are high cost of feed followed by non- availability of green fodder round the year and lack of knowledge of balanced ration. Similar findings were revealed by Mohi and Bhatti (2006) that high price of concentrates was the major constraint in adoption of improved feeding practices. Kavithaa *et al.* (2020) also identified that major constraints for dairy farmers were non-availability of green fodder round the year, vulnerability of cross bred animals to diseases, non-remunerative price for milk and lack of purchasing power of the farmers in the areas of feeding, breeding and health care.

A decorative border composed of intricate black and white floral and scrollwork patterns. The border is shaped like a rounded rectangle, with ornate flourishes at each corner. Three stylized butterflies are scattered within the border: one in the upper-left, one in the lower-right, and one in the lower-center. The background is white with a faint, light gray watermark of a diamond shape.

Summary
and
Conclusions

Chapter - 6

Summary and conclusion

Livestock plays a multifactorial role in livelihood of majority of people in India as it provides nutrition, economy and stable income source and also contributes for community development. Though India is highest milk producing country in the world, the production potential of indigenous animal is less as compared to their population because of which large disparity exists in our country in terms of milk production. So, improving the productivity of farm animals is one of the major challenges faced by country. The production and reproduction characteristics are highly affected during transition period of dairy animals i.e., the period between 3 weeks before and 3 weeks after calving. Considering the above facts, the present study on “Study on knowledge and adoption of practices during transition period of dairy animals” was planned with following objectives:

- To assess the existing practices followed by the dairy farmers during transition period.
- To measure the knowledge and adoption level of respondents about transition period.
- To identify the constraints faced by farmers during transition period of dairy animals.
- To identify the scientific practices to be disseminated for farmers during transition period.

The study was conducted in ten randomly selected villages of purposively selected Mathura district of Uttar Pradesh. Information was collected from ten purposively selected respondents from each village and thus total sample size was 100. Data was collected through pre-designed interview schedule and knowledge through knowledge test as per the objectives of the study and the results were analysed using suitable statistical tools. Socio economic profile of the respondents include age, education, experience in dairy farming, total income, herd size, milk production, milk disposal pattern and information sources. Apart from this, productive and reproductive parameters of the dairy animals, knowledge and adoption level of practices during transition period and constraints faced by them was also studied.

The important findings of the study are as follows:

- ✓ Majority 48% of the respondents belong to old age group, 32% belong to middle age group and 20% belong to young age group.
- ✓ Out of total number of respondents, 4.00% were illiterate, 20.00% passed primary level, 40.00% were having middle level of education, 28.00% were having secondary education, 8.00% passed higher secondary and only 4.00% were graduate and above. Nearly 20.00% respondents were having low experience in dairy farming and 32.00% and 48.00% were having medium and high experience in dairy farming respectively.
- ✓ Among all the 100 respondents, 24.00%, 32.00% and 44.00% respondents were having small, medium and large size of herd respectively.
- ✓ Out of the total milk produced per day, no milk was sold to milk co-operative and private dairy, 20.63% is utilized for household consumption, 25.56% is sold to local customers, 26.49% is sold to local milk vendors and 27.32% is sold to local sweet shops.
- ✓ Majority of the respondents belong to the high milk consumers i.e., 56% followed by medium and low consumers with percentages 32% and 12% respectively.
- ✓ Study reveals that 24.00% respondents were receiving low information through personal localite sources followed by 24.00% were receiving medium information and 52.00% were receiving high information.
- ✓ No feeding standards were followed by majority (68.00%) of the respondents for feeding their animals and 32.00% respondents were using milk production as the criteria for feeding the animals. Along with this, most of them are using home produced concentrate mixture for the animals while only 20.00% respondents were using compound cattle feed for their animals.
- ✓ Proper disposal of placenta is not followed by 88.00% of the respondents while it is adopted by only 12.00% respondents. Intermittent milking is adopted by only 20.00% respondents for drying their animals while 40.00% and 40.00% respectively were using incomplete milking and abrupt stoppage of milking for drying their animals.
- ✓ Vaccination for prevention of infectious diseases is followed by majority (60.00%) of the respondents. Only 24.00% of the respondents receive treatment from registered veterinary practitioner in case of retention of foetal membranes and other post-partum abnormalities.

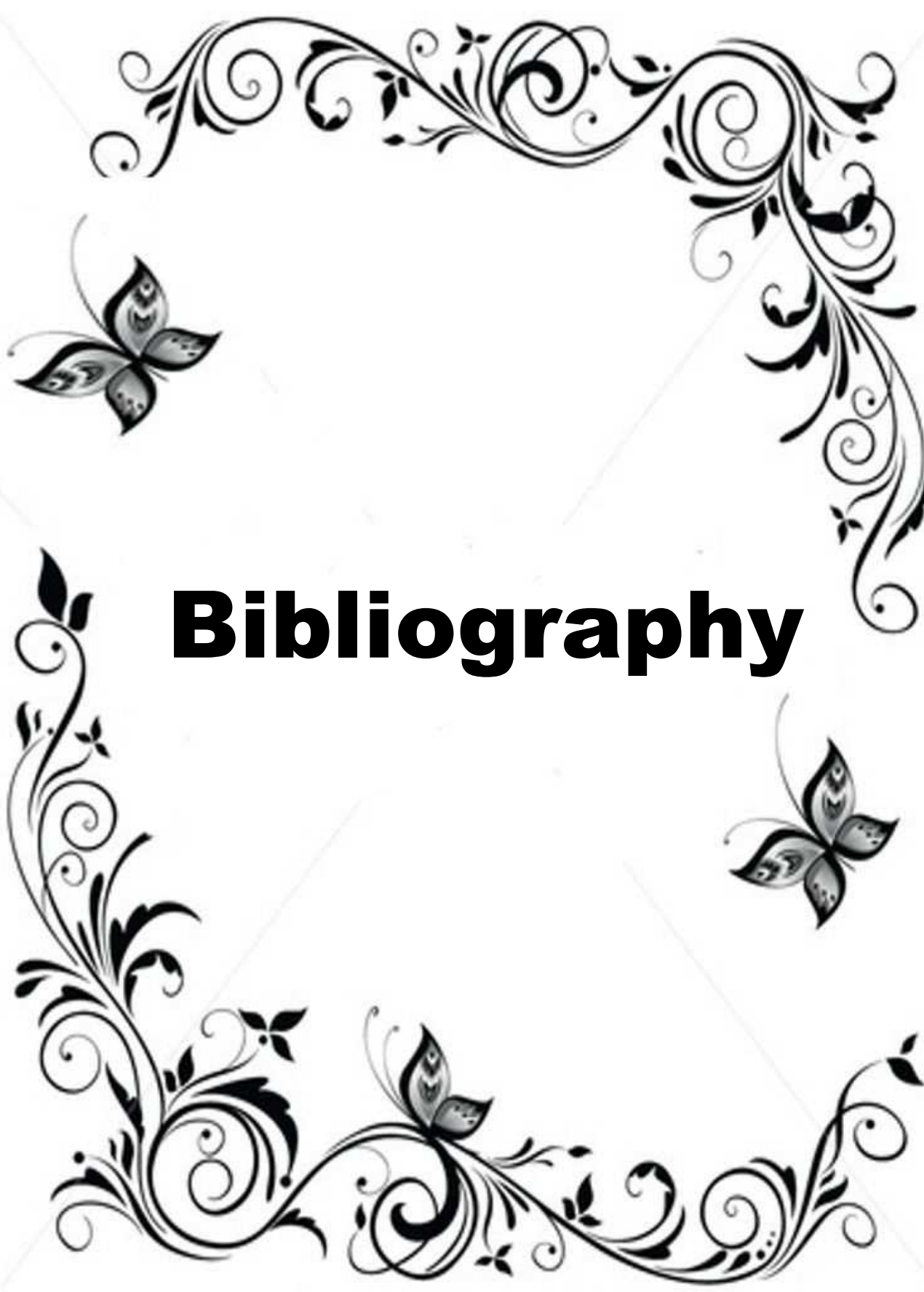
- ✓ Average daily milk yield was recorded as 2.8 ± 1.34 , 6.31 ± 1.43 and 5.50 ± 0.83 litres, Lactational length was 224.5 ± 22.30 , 220.91 ± 17.10 and 226.60 ± 10.14 days, Lactational milk yield was 912.75 ± 292.00 , 1457.51 ± 315.73 and 1322.24 ± 182.24 litres, Peak yield was 5.65 ± 1.39 , 9.39 ± 1.56 and 6.72 ± 0.64 litres, Dry period was 140.5 ± 22.30 , 144.09 ± 17.10 and 138.40 ± 10.14 days for indigenous cattle, crossbred cattle and buffaloes respectively.
- ✓ Age at puberty was 30.05 ± 2.09 , 18.68 ± 1.49 and 22.52 ± 2.14 months, Age at 1st calving was 43.55 ± 2.70 , 37.82 ± 2.70 and 55.47 ± 2.73 months, Service period was 119.95 ± 8.21 , 126.97 ± 6.60 and 193.77 ± 10.20 days, no. of services per conception were 4.05 ± 1.05 , 3.88 ± 1.29 and 4.13 ± 1.28 , Calving interval was 508 ± 20.55 , 434.33 ± 21.19 and 529.52 ± 12.28 days in indigenous cattle, crossbred cattle and buffaloes respectively.
- ✓ Rates of occurrences of dystocia, metritis and prolapse were highest in buffaloes which were 5.25%, 11.42% and 7.41% respectively but, rate of occurrence of retention of foetal membranes was highest in crossbred cattle i.e., 13.54%. on the other hand, rates of occurrence of milk fever, mastitis and udder oedema were highest in crossbred cattle as compared to indigenous cattle and buffaloes and those were 3.65%, 7.29% and 16.67% respectively.
- ✓ The respondents were having highest knowledge about the calf management practices during transition period (87.50%) followed by general management practices (81.82%), healthcare practices (75.00%) and feeding management (61.11%).
- ✓ Knowledge level of respondents is positively correlated with education, personal cosmopolite information sources and adoption of various management practices during transition period.
- ✓ The adoption indices for management practices, feeding practices, healthcare practices and breeding practices were 46.86%, 53.20%, 46.00% and 51.00% respectively. Also, the pooled average of all the adoption practices was calculated which was found to be 49.26%.
- ✓ The adoption level of the respondents for management practices like full hand milking method (62.00%), Udder cleaning before milking (58.00%) was highest while it was lowest for the practice of selection of dairy animals for breeding and production (26.00%).

- ✓ The adoption level of the respondents for management practices like concentrate mixture feeding to dairy animals (76.00%), feeding of colostrum to newborn calves (62.00%) was highest while it was lowest for the practice like balanced ration feeding to dairy animals (20.00%)
- ✓ Among all breeding practices, artificial Insemination practice (92.00%) and seeking help from veterinarian in case of difficult parturition (54.00%) were highly adopted practices while methods for oestrus detection in animals like recording vaginal temperature, using teaser bulls etc.(38.00%) and breeding record maintenance (18.00%) were least adopted.
- ✓ Major constraints faced by the respondents regarding health care of the animals were distant location of veterinary hospitals from remote villages and repeat breeding in the dairy animals with ranks I and II respectively.

Conclusions:

On the basis of research findings, following conclusions can be drawn

- Majority of the farmers were old age group with education up to secondary level and having medium to high level of income. Most of them are medium to high milk producers with large herd size.
- In respect to adoption of the improved practices during transition period viz., feeding, management, healthcare and breeding the overall adoption rate is very less (49.26%).
- However, the overall knowledge level of respondents about the fore mentioned practices is found to be quite well which indicate that there is a large gap between the knowledge of the improved practices and their adoption by the respondents.
- The most important constraints in adoption of the practices were inadequate knowledge of diseases and their control measures followed by problem of disposal of old/ disabled animals and distant location of veterinary hospitals from remote villages.



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Interview schedule

Title: Study on knowledge and adoption of practices during Transition Period of dairy animals

Socio Personal profile

S/No.....

Date:.....

Name of owner.....

Village.....

Block.....

1. Age.....

2. Education

S/No.	Category	
1.	Illiterate	
2.	Primary	
3.	Middle	
4.	Secondary	
5.	Higher secondary	
6.	Graduate and above	

3. Experience (years) in dairy farming.....

4. Total income (annual in Rs.).....

5. Land Holding.....

6. Herd size

S.No.	Stage	Type of animals			Total
		Indigenous	Crossbred	Buffalo	
1.	In milk not Pregnant				
2.	In milk and pregnant				
3.	Dry				
4.	Heifer				
5.	Pregnant heifer				
6.	Calves(male/female)				
7.	Adult male(bull/bullock)				
	Total				

7. Milk Production

S/No.	Species	Milk production
1.	Cattle (Cross breed+ indigenous)	
2.	Buffalo	
3.	Total	

8. Milk disposal pattern

S/No.	Agency	Amount of milk (liter/day)	Price
1.	Private dairy		
2.	Milk co-operative		
3.	Sweet shop		
4.	Milk vender		

9. Management practices followed by respondents**A. Feeding management practices**

- a. Feeding of milch animals
 - 1) Individual feeding
 - 2) Group feeding

b. Fodder availability

S. No	Fodder availability	
1.	Green	
	Legume +Non legume	
	Legume	
	Non legume	
	Grasses	
2.	Dry	
	Paddy straw + Wheat Straw	
	Paddy straw	
	wheat straw	
	Any other combination	
3.	Type of concentrate feeding	
	Mixed	
	Compounded cattle feed	
	Home produced ingredients	
4.	Feeding standard followed	
	Bodyweight	
	Milk production	
	Age	
	Milk Fat	
	No criteria	
5.	Processing of fodders	
	Silage making	
	Chemical processing	
	Chaffed	

	As such	
6.	Feeding of concentrate to advanced pregnant heifer	
	For last two month	
	For last one month	
	For last 15 days	
	No special feeding	

B. Management Practices followed during transition period

S No.	Feeding	
1	Dry cow therapy a. Yes b. No	
2	Method of drying a. Intermittent milking b. Incomplete milking c. Abrupt stoppage	
3	Vaccination a. Yes b. No	
4	Housing of advanced pregnant animal a. Separate housing b. With herd	
5	Providing bedding to pregnant animal a. Yes b. No	
6	Watering the animal after parturition a. Yes b. No	
7	Attending and assisting the animal during parturition a. Yes b. No	
8	Cleaning the calf a. By rubbing with dry cloth b. Licking by the dam	
9	Placenta disposal a. Buried in soil b. Thrown away c. Not required	
10	Get assistant when placenta was not shed a. Veterinary officer b. LEO c. Quacks	
11	Washing the hind quarter after calving a. Yes b. No	
12	Washing the udder before milking a. Yes b. No	
13	Washing the animal before milking	

	a. Yes b. No	
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C. Health care Practices followed during transition period

1.	Deworming of the animals a. Regular b. Occasional c. Not practiced	
2.	Practices for controlling ectoparasites a. followed b. not followed	
3.	Cleanliness of the shed a. clean b. dirty	
4.	Washing of hind quarter after dropping of placenta a. yes b. no	
5.	Grooming of the animals a. followed b. not followed	
6.	Isolation of sick animals from healthy ones a. followed b. not followed	
7.	Getting assistance in case of difficult parturition a. veterinary professional b. livestock inspector c. quack	

10. Productive parameters

S/No.	Productive parameters	Average daily milk yield (liters)	Lactation length (days)	Lactation milk yield (liters)	Peak yield (liters)	Dry period (days)
1.	Cow					
2.	Cow					
3.	Buffalo					
4.	Buffalo					

11. Reproductive parameters

S/No.	Reproductive parameters	Age at puberty(days)	Age at 1 st calving (days)	Service period (days)	Service per conception (no.)	Calving interval (days)
1.	Cow					
2.	Cow					
3.	Buffalo					
4.	Buffalo					

12. Indigenous Traditional Knowledge (ITKs) used by respondents**A. Dairy animals**

S/No.	Elements	Ingredients	Dosage	Route	Adoption
1.	Anestrus				
2.	Repeat breeding				
3.	Abortion				
4.	Retention of placenta				
5.	Milk fever				
6.	Ketosis				

B. Calf

S/No.	Elements	Ingredients	Doses	Route	Adoption
1.	Diarrhoea				
2.	Navel ill				
3.	Pneumonia				
4.	Bloat				
5.	Fever				
6.	Ectoparasite and endoparasite infestation				

13. Information sources

S/No.	Source	Regularly (2)	Occasionally (1)	Never (0)
A. Personal localite sources				
1.	Friends			
2.	Family Members			
3.	Relatives			
4.	Local Leader			
B. Personal cosmopolite source				
5.	Veterinary Officer			
6.	Insurance Agent			
7.	Bank Person			
8.	Livestock Extension Officer			
9.	Non- Government Organization			
10.	Other			
C. Impersonal cosmopolite sources				
11.	Radio			
12.	T.V.			
13.	Newspaper			
14.	Leaflet			
15.	Poster			

14. Incidence of diseases

S/No	Elements	Cow 1	Cow 2	Cow 3	Buffalo 1	Buffalo 2	Buffalo 3
1.	Dystocia						
2.	Retention of placenta						
3.	Still birth						
4.	Uterine prolapse						
5.	Milk fever						
6.	Ketosis						

15. Adoption of practices**A. Management practices**

S/No.	Management practices	Fully adopted	Partially adopted	Not adopted
1.	Selection of dairy animals			
2.	Application of antiseptic to the naval of calf after birth			
3.	Deworming of calves			
4.	Separation of advanced pregnant animals from other animals			
5.	Udder cleaning before milking			
6.	Full hand milking method			
7.	Removal of fore milk during milking			

B. Feeding practices

S/No.	Feeding practices	Fully adopted	Partially adopted	Not adopted
1.	Feeding of colostrum to newborn calves			
2.	Feeding of extra concentrates to pregnant animals			
3.	Balanced ration feeding to dairy animals			
4.	Concentrate mixture feeding to dairy animals			
5.	Mineral mixture feeding			

C. Health care practices

S/No.	Health care practices	Fully adopted	Partially adopted	Not adopted
1.	Separation of diseased animals from healthy ones			
2.	Timely deworming of animals			
3.	Vaccination of animals			
4.	Treatment of sick animals by veterinarians			
5.	Prevention and control of ticks and mite infestation			
6.	Cutting of naval cord and antiseptic solution application			

7.	Treatment of anestrus, repeat breeding and other reproductive disorders by veterinary practitioner			
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D. Breeding practices

S/No.	Breeding practices	Fully adopted	Partially adopted	Not adopted
1.	Breeding record maintenance			
2.	AI practice			
3.	Appropriate period of AI after calving			
4.	Estrus detection methods in animals			
5.	Pregnancy diagnosis			
6.	seeking help from veterinarian in case of difficult parturition			

16. Constraints faced by respondents during transition period

S/No.	Constraints	Rank
1.	Inadequate knowledge and their control measures	
2.	High cost of feed and non- availability of feed during summer	
3.	Lack of knowledge of balanced ration	
4.	Distant location of veterinary hospitals from remote villages	
5.	Non- availability of services of veterinary doctor regularly	
6.	High cost of veterinary medicines	
7.	Problem of disposal of old/ disabled animals	
8.	Repeat breeding	
9.	High reproductive disorders in milch animals	
10.	Non- availability of timely A.I. facility	
11.	Improper treatment services	
12.	Low milk production in summer	
13.	Calf mortality	
14.	Lack of knowledge of newborn calf management	

17. Knowledge test

A. Feeding practices during Transition Period

1.	Steaming up means?	
	a. No idea	
	b. Feeding of colostrum to the new born calf	
	c. Fattening of dairy cow	
	d. Feeding of pregnant animal with high plane of nutrition 6-8 weeks before calving	
2.	Amount of mineral mixture to be fed to dairy animals	
	a. 5-8 g	
	b. 10-12 g	
	c. 15-20 g	
	d. 25- 30 g	
3.	Common calcium preparations available in market for dairy animal	
	a. Ostovet syrup	
	b. Crical oral calcium	

	c. ABCAL gold	
	d. All of the above	
4.	How much concentrate mixture should be fed to the advanced pregnant animal?	
	a. 50-100 g	
	b. 200-300 g	
	c. 300-500 g	
	d. 1-2kg	
5.	Feed additives fed during transition period are.....	
	a. Potassium carbonate	
	b. Vitamin A	
	c. Selenium salts	
	d. All of the above	
6.	Reasons for reduced feed intake by animals during transition period....	
	a. Reduction in abdominal volume due to growing foetus	
	b. Physiological stress condition in animal during last trimester of pregnancy	
	c. None of the above	
	d. Both of the above	
7.	Why sudden change of feed should not be done in dairy animals?	
	a. Sudden change of diet interferes with the microbial population in the gut of the animal	
	b. Sudden change in diet increase lactic acid production due to increase in resistant lactate producing bacteria	
	c. It causes indigestion in animal as a result of engorgement and leads to ruminal acidosis	
	d. All of the above	
8.	For the treatment of infertility _____ is used as indigenous practice	
	a. No idea	
	b. Addition of haldi (turmeric) in drinking water	
	c. Giving jaggery water immediately after the feed	
	d. 25-50 g aloe vera (2-3 petals) for 3 days empty stomach along with neem oil	
9.	Negative DCAD diet should be fed to prevent milk fever in _____	
	a. Late lactation	
	b. Early gestation	
	c. Early lactation	
	d. Late gestation	

B. Other management practices during Transition Period

1.	The appropriate drying period should be _____ days before parturition	
	a. 30 days	
	b. 50 days	
	c. 40 days	
	d. 60 days	
2.	_____ bunk space is per advanced pregnant cow should be	
	a. 50-60 square feet	
	b. 60-70 square feet	
	c. 80-90 square feet	
	d. 100-300 square feet	

3.	Inadequate exercise during dry period leads to	
	a. Over fattening of animals	
	b. Muscular flaccidity	
	c. Obstruction in healthy parturition	
	d. All of the above	
4.	Parturition should occur within _____ hours of commencement of calving	
	a. 10-12 hours	
	b. 15- 16 hours	
	c. 10-12 hours	
	d. 3-8 hours	
5.	In case of abnormal presentation or dystocia, farmer should immediately__	
	a.Handlethe animal by their own	
	b. Call the neighbors	
	c. Take the help of layman for normal parturition of the animal	
	d. Call the veterinarian and take help for safe delivery of animal	
6.	Colostrum should be fed within _____ after the birth of the calf	
	a. 80-90 min	
	b. 30-40 min	
	c. 50-60 min	
	d.15-30 min	
7.	Appropriate age of disbudding the calf is	
	a. 50 -60 days	
	b. 20-30 days	
	c. 35-40 days	
	d. 8-15 days	
8.	Correct method of hand milking is	
	a. Stripping	
	b. Knuckling	
	c. Both of the above	
	d. Full hand milking	
9.	Correct method of drying for high yielding animals is	
	a. Complete milking	
	b. Incomplete milking	
	c. Both of the above	
	d. Intermittent milking	
10.	Average gestation period of cow is	
	a. No idea	
	b. 300 days (10 months)	
	c. 210 days (7 months)	
	d. 283 days (9 month & 9 days)	
11.	Advanced pregnant cows should be separated from other animals for _____	
	a. Avoiding the chances of injury to dam by other animals	
	b. Minimizing the stress level of animal by providing comfortable bedding	
	c. Easy recognition of labor or calving signs	
	d. All of the above	

C. Health care practices during Transition Period

1.	In case of vaginal prolapse, the farmer should go for.....	
	a. Man- handling and pushing of prolapsed mass forcefully	
	b. Asking a para vet to treat the condition	
	c. Both of the above	
	d. Taking help of a qualified veterinary professional for treating the condition and suturing of the vulval lips.	
2.	Predisposing factors for dystocia in dairy animals	
	a. Foetal- maternal size disproportion	
	b. Foetal malpresentation	
	c. Uterine torsion	
	d. All of the above	
3.	Calfhood vaccination is preferred for.....	
	a. Both males and females	
	b. Male calves for prevention of brucellosis	
	c. Both	
	d. Female calves of 4-6 months age for prevention of brucellosis	
4.	Common symptoms of abortion in dairy animals are	
	a. Straining	
	b. Vaginal discharge	
	c. Fighting with other animals	
	d. Both a & b	
5.	Deworming should be carried out	
	a. Once in two years	
	b. Once in month	
	c. Once a year	
	d. Twice a year	
6.	The common predisposing factors for metritis are	
	a. Retained placenta	
	b. Abortion	
	c. Dystocia	
	d. All of the above	
7.	Dry cow therapy is _____	
	a. Treatment of cows at the end of the lactation with intra- mammary antibiotics	
	b. Extra feeding of pregnant animals in dry period	
	c. Therapeutics given to the animal as a preventive measure to avoid further complications	
	d. Management & treatment given to the dairy animals during dry period	
8.	Common visual symptoms of mastitis are	
	a. Hardened udder and swollen teats	
	b. Pus discharge from teats	
	c. Oozing of blood from the teats	
	d. All of the above	
9.	Causative factors for anoestrus are	
	a. Inadequate feeding of roughages and concentrates	
	b. Endo/ectoparasitic infestation	
	c. Mineral deficiency due to previous lactation	
	d. All of the above	

10.	Common symptoms of milk fever	
	a. Excited before parturition	
	b. Folding of neck while sitting	
	c. Inability to stand on their feet&unconsciousness	
	d. All of the above	

D.Calf management during transition period

1.	Practice of naval cord cutting is done as	
	a. Using sterile blade	
	b. Applying tincture iodine on it	
	c. Applying povidone iodine on the adjacent surface	
	d. All of the above	
2.	Amount of colostrum to be fed to the calf per day	
	a. 20% of the body weight (8 kg)	
	b. 5% of the body weight (2 kg)	
	c. 15% of the body weight (6 kg)	
	d. 10% of the body weight (4 kg)	
3.	1 st deworming of the calf should be done in	
	a. 4 th week	
	b. 3 rd week	
	c. 2 nd week	
	d. 1 st week	
4.	For the proper development of the rumen, hay should be fed after	
	a. 1 week	
	b. 4 weeks	
	c. 3 weeks	
	d. 2 weeks	
5.	Colostrum is helpful in	
	a. Providing immunity	
	b. Increases gut mobility& improves digestibility	
	c. Supplementation of various nutrients	
	d. All of the above	



Knowledge test: Value of Difficulty Index and Discrimination Index

S/No.	Elements	Difficulty Index	Discrimination Index
A.	Feeding practices during Transition Period		
1.	Steaming up means?	0.875	0.375*
2.	Amount of mineral mixture to be fed to dairy animals	0.625	0.375*
3.	Ca:P ratio in cattle diet should be	0.25	0.75
4.	Common calcium preparations available in market for dairy animal	0.375	0.375*
5.	How much concentrate mixture should be fed to the advanced pregnant animal?	0.625	0.375*
6.	Feed supplements fed during transition period are.....	0.625	0.375*
7.	Reasons behind reduced feed intake during transition period....	0.75	0.75*
8.	Why sudden change of feed should not be done in dairy animals?	0.875	0.375*
9.	How much extra amount of green fodder is provided to expecting dam than others?	0.5	0
10.	What amount of anionic mixture to be fed to the animal before parturition for preventing milk fever?	0.25	0.75
11.	Amount of vitamin A to be administered in advance pregnant cows	0.125	0.375
12.	Ideal weight of heifer at puberty should be _____	0.875	0.375
13.	For treating infertility _____ is used as indigenous practice/ preparation	0.625	0.375*
14.	Negative DCAD diet should be fed to prevent milk fever in.....	0.5	0.75*
15.	Peak milk yield is attained after _____ weeks after calving	0.625	1.125
B.	Management practices during Transition Period		
1.	The appropriate drying period should be _____ days before parturition	0.875	0.375*
2.	_____ bunk space requirement per advance pregnant cow should be	0.875	0.375*
3.	Inadequate exercise during dry period leads to	0.875	0.375*
4.	Parturition should occur within _____ hours of commencement of calving	0.5	0.75*

5.	In case of abnormal presentation or dystocia, farmer should immediately _____	0.75	0.75*
6.	Colostrum should be fed within _____ minutes after parturition	0.625	0.375*
7.	Appropriate age of disbudding of calf is	0.75	0.75*
8.	Ideal body condition score of the cow near parturition/ lactation is	0.25	0.75
9.	Name the diseases that occur during transition period	1	0
10.	Correct method of hand milking is	0.625	0.375*
11.	Suitable method of drying for high yielding animals is	0.875	0.375*
12.	Appropriate time of insemination in dairy animals	0.75	0
13.	What should be the ideal age of puberty in indigenous cows?	0.5	1.5
14.	Average gestation period in cow is	0.875	0.375*
15.	Advanced pregnant cows should be separated from other cows for _____	0.625	0.375*
C.	Health care practice during Transition Period		
1.	Retention of placenta is a condition in which placenta is retained more than....	0.25	0
2.	Feeding of colostrum to new born calf is carried out	0.75	0
3.	Common symptom of prepartum prolapse	0.25	0.75
4.	In case of vaginal prolapse, the farmer should go for.....	0.625	0.375*
5.	Predisposing factors for dystocia in dairy animals	0.5	0.75*
6.	Calfhood vaccination is preferred for.....	0.5	0.75*
7.	Common symptoms of abortion in dairy animals are	0.625	0.375*
8.	Deworming should be carried out	0.875	0.375*
9.	The common predisposing factors of metritis are	0.625	0.375*
10.	Dry cow therapy is _____	0.75	0.75*
11.	Negative energy balance in animals around parturition leads to	0.25	0.75
12.	Common visual symptoms of mastitis are	0.75	0.75*
13.	Time required for involution of uterus after parturition is _____	0.375	1.125
14.	Causative factors for anoestrus are	0.875	0.375*
15.	Common symptoms of milk fever	0.75	0.75*
D.	Calf management during transition period		
1.	Practice of naval cord cutting is done as	0.875	0.375*

2.	Symptoms of naval ill in calves are	0.75	0
3.	Colostrum provides _____	0.75	0
4.	Common symptom of calf scour	0.5	0
5.	Amount of colostrum to be fed to the calf per day	0.625	0.375*
6.	1 st deworming of the calf should be done in	0.375	0.375*
7.	For the proper development of the rumen, hay should be fed after	0.375	0.375*
8.	Symptoms of pneumonia in calves	1	0
9.	Name some diseases of calves	1	0
10.	Practices followed after the birth of calf	0.5	1.5
11.	Colostrum is helpful in	0.75	0.75*

Final List of selected items

Items were selected on the basis of difficulty index and discrimination index. Items having **values ranging between 0.30 to 0.90** were considered for final selection.

A. Feeding practices during Transition Period

S/No.	Elements	Difficulty Index	Discrimination Index
1.	Steaming up means?	0.875	0.375
2.	Amount of mineral mixture to be fed to dairy animals	0.625	0.375
3.	Common calcium preparations available in market for dairy animal	0.375	0.375
4.	How much concentrate mixture should be fed to the advanced pregnant animal?	0.625	0.375
5.	Feed supplements fed during transition period are.....	0.625	0.375
6.	Reasons behind reduced feed intake during transition period....	0.75	0.75
7.	Why sudden change of feed should not be done in dairy animals?	0.875	0.375
8.	For treating infertility _____ is used as indigenous practice/ preparation	0.625	0.375
9.	Negative DCAD diet should fed to prevent milk fever in.....	0.5	0.75

B. Management practices during Transition Period

S/No.	Elements	Difficulty Index	Discrimination Index
1.	The appropriate drying period should be _____ days before parturition	0.875	0.375
2.	_____ bunk space requirement per advance pregnant cow should be	0.875	0.375
3.	Inadequate exercise during dry period leads to	0.875	0.375

4.	Parturition should occur within _____ hours of commencement of calving	0.5	0.75
5.	In case of abnormal presentation or dystocia, farmer should immediately_____	0.75	0.75
6.	Colostrum should be fed within _____ minutes after parturition	0.625	0.375
7.	Appropriate age of disbudding of calf is	0.75	0.75
8.	Correct method of hand milking is	0.625	0.375
9.	Suitable method of drying for high yielding animals is	0.875	0.375
10.	Average gestation period in cow is	0.875	0.375
11.	Advanced pregnant cows should be separated from other cows for_____	0.625	0.375

C. Health care practice during Transition Period

S/No.	Elements	Difficulty Index	Discrimination Index
1.	In case of vaginal prolapse, the farmer should go for.....	0.625	0.375
2.	Predisposing factors for dystocia in dairy animals	0.5	0.75
3.	Calfhood vaccination is preferred for.....	0.5	0.75
4.	Common symptoms of abortion in dairy animals are	0.625	0.375
5.	Deworming should be carried out	0.875	0.375
6.	The common predisposing factors of metritis are	0.625	0.375
7.	Dry cow therapy is _____	0.75	0.75
8.	Common visual symptoms of mastitis are	0.75	0.75
9.	Causative factors for anoestrus are	0.875	0.375
10.	Common symptoms of milk fever	0.75	0.75

D. Calf management during transition period

S/No.	Elements	Difficulty Index	Discrimination Index
1.	Practice of naval cord cutting is done as	0.875	0.375
2.	Amount of colostrum to be fed to the calf per day	0.625	0.375
3.	1 st deworming of the calf should be done in	0.375	0.375
4.	For the proper development of the rumen, hay should be fed after	0.375	0.375
5.	Colostrum is helpful in	0.75	0.75

डेयरी पशुओ मे ट्रैनजिशन काल



पशु चिकित्सा एवं पशुपालन प्रसार विभाग
पशु चिकित्सा संकाय

उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय
एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

ट्रैनजिशन काल के दौरान पशु मे होने वाले बदलाओ कुछ इस प्रकार है

- ट्रैनजिशन काल के दौरान अपर्याप्त आहार का सेवन – पशुओ मे आहार का सेवन ब्याहने के कुछ हफते पहले से कम हो जाता है और ब्यांत पर न्यूनतम स्तर पर पहुँच जाता है. शुष्क अवधि के दौरान ऊर्जा और प्रोटीन की कम आवश्यकता होती है प्रसव के नजदीक आते ही पशु खाना कम कर देता है यह पशु को ब्याहने के पहले ही नकारात्मक ऊर्जा संतुलन की ओर ले जाता है
- दुग्ध उत्पादन हेतु संगठित शारीरिक ऊर्जा का उपयोग – ब्याहने के बाद शरीर मे ऊर्जा संतुलन कम होता है एवं ग्लूकोज की बढ़ती शारीरिक माँग की वजह से पशु शारीरिक वसा का उपयोग दूध उत्पादन मे करता है। शारीरिक वसा का उपयोग होने पे नेफा का जन्म होता है
- रोग प्रतिरोधक क्षमता में कमी – ट्रैनजिशन काल के दौरान नयुटर्फिल्ल की कार्य क्षमता मे गिरावट आ जाती है जिससे की रोग प्रतिरोधक क्षमता मे कम हो जाती है। इस अवस्था में पशु के शरीर में अनेक प्रकार के विकार (गर्भाशयशोथ, पायोमेट्रा और थनैला) का जन्म होता है

लेखक : लवले प्रणिता मुरलीधर व अमित सिंह

प्रकाशक : पशु चिकित्सा एवं पशुपालन प्रसार विभाग, पशु चिकित्सा संकाय, उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

नवजात बछड़े / बछीया की देखभाल



पशु चिकित्सा एवं पशुपालन प्रसार विभाग
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- खीस में मातृत एंटी बॉडी होती है जोकि नवजात शिशु को विभिन्न रोगों से रक्षा करती है। खीस रेचक (दस्तावर) प्रवर्ती का होता है जिसके पिलाने से आहार नल में जमा मल (जोकि माँ के गर्भ के समय बच्चे के पेट में जमा हो जाता है) जल्दी ही बहार निकल जाता है जिसे हम प्रथम मल या मेकोनियम कहते हैं।
- अगर बछड़े को माँ से खीस न मिल पाए तो कृत्रिम खीस बना कर उसे उपलब्ध कराए। इसे भी एक घंटे के भीतर बछड़े को पिलाए। कृत्रिम खीस की सामग्री है

कृत्रिम खीस की सामग्री

क्र. स.	कृत्रिम खीस की सामग्री	मात्रा
1	गरम पानी	275 मि ली
2	अंडा	एक
3	कशटर तेल	3 मि ली
4	विटामिन ए	10000 IU
5	गरम दूध	525 मि ली
6	दवाई	~80 मि ग्र

लेखक : लवले प्रणिता मुरलीधर व अमित सिंह
प्रकाशक : पशु चिकित्सा एवं पशुपालन प्रसार विभाग, पशु चिकित्सा संकाय, उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

नवजात बछड़े / बछीया के रोग



पशु चिकित्सा एवं पशुपालन प्रसार विभाग
पशु चिकित्सा संकाय
उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय
एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

निमोनिया

यह नवजात बछड़ों एवं पड्डा-पडिया का सबसे आम, जीवाणु जनित संक्रामण रोग है इससे प्रतिवर्ष कई बछड़ो की मृत्यु हो जाती है

इस बीमारी के सहायक कारण है जैसे परिवर्षा का कम तापमान, अधिक आर्द्रता और पशुशाला में पर्याप्त हवा का आवागमन न होता है बछड़ो के तनाव में रहने की वजह से इस रोग के जीवाणु उन्हें अधिक प्रभाव करते है

नवजात बछड़ों में लक्षण है कि बछड़ो को साँस लेने में कठिनाई और खासी होती है

- बछड़ो का नाक बहता रहता है और तेज बुखार (102 °F) होता है
- बछडा सुस्त और कमजोर हो जाता है
- नवजात को भुख कम लगती है और पर्याप्त वजन की बढ़ोतरी नही होती है

नवजात बछड़ों के बचाव व निदान के लिए निम्न उपाय करे

- ❖ बीमार बछड़ो को अन्य पशुओ व बछडा से अलग रखे, पशुशाला में साफ सफाई रखनी चाहिये
- ❖ नवजात बछड़ो को पर्याप्त मात्रा में खीस व दुध पिलाना चाहिये
- ❖ सर्दी के दिनों में बछड़ो के बाडे को टॉट आदि से लपेट कर रखना और गर्मी में बछड़ो को खुले में रखना चाहिए

लेखक : लवले प्रणिता मुरलीधर व अमित सिंह

प्रकाशक : पशु चिकित्सा एवं पशुपालन प्रसार विभाग, पशु चिकित्सा संकाय, उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

ट्रैनजिशन काल मे डेयरी पशुओ का पोषण



पशु चिकित्सा एवं पशुपालन प्रसार विभाग
पशु चिकित्सा संकाय

उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय
एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

नजदिकि शुष्क अवधि के दौरान पशुओ का पोषण एवं प्रबंधन

- ❖ इस अवधि मे पशु को प्रसव के बाद मिलने वाले अधिक दाने के लिए तैयार किया जाता है इस प्रक्रिया को इसटिमिंग अप कहते है
- ❖ डेयरी पशुओं में उत्पादकता बने रहे इसलिए इस अवधि मे गाय में 1 किलो और भैस में 1.5 किलो अतिरिक्त दाना दिया जाता है
- ❖ शुष्क अवस्था के अंतिम चरण मे पशु आहार में 50 ग्रम तक अमोनियम कालोराट या अमोनियम सल्फेट दे
- ❖ प्रसव के दौरान और उसके बाद पशु को कैल्शियम क्लोराइट पीलाए ताकि दुग्ध जवर न हो
- ❖ प्रसव से तीन दिन पूर्व पशु को रेसेदार आहार दे
- ❖ प्रसव से पहले विटामिन ए का इंजेक्शन पशु को लगवाना चाहिए।
- ❖ प्रसव से पहले गर्भीत पशु को अलग बाडे में रखे। पशु के प्रसव का बाडा साफ, स्वच्छ एवं हवादार हो
- ❖ पशुपालक पशु मे प्रसव के लक्षणो जैसे पशु मे बेचैनी, कष्टपथ स्थिति, रंभाना, पेट की तरफ लात फटकारना, पूछ उठा कर रखना एवं कुछ समय के लिए बैठना या खडा होने पे नजर रखे

लेखक : लवले प्रणिता मुरलीधर व अमित सिंह

प्रकाशक : पशु चिकित्सा एवं पशुपालन प्रसार विभाग, पशु चिकित्सा संकाय, उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

डेयरी पशुओ मे ट्रॅनजिशन काल के विकार



पशु चिकित्सा एवं पशुपालन प्रसार विभाग
पशु चिकित्सा संकाय
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एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

जेर का रुकना

प्रसव के बाद जेर का रुकना पशुओं में होने वाला सबसे आम समस्या है इस से प्रभावित पशु न केवल भविष्य में कम दूध देता है बल्कि उसकी प्रजनन दक्षता भी कम हो जाती है सामान्य शारीरिक प्रसव में जेर पशु से 3-8 घंटे के भीतर गिर जाती है नियमित समय सीमा से जेर का गिरना जरूरी है क्योंकि यह भविष्य में गर्भाशय को सामान्य स्थिति आने पर प्रभावित करता है और पशु के मदकाल चक्र को भी सामान्य करता है

पशु मे जेर के रुकने का मुख्य कारण है

- समय से पहले बछड़े का जन्म लेना जिसकि वजह से प्लसनटोम गर्भाशय से अलग नहीं हो पाते है।
- कोरियोनिक बिल्ली में सूजन आना साथ ही गर्भाशय में ऐंठ जाना
- डिस्टोकिया और कैल्शियम की कमी से गर्भाशय का कमजोर होना
- भोजन में विटामिन ए, सेलेनियम और आयोडिन की कमी होना
- पशु का तनाव मे होना
- पशु का कम अथवा अधिक समय तक गर्भीत रहना

लेखक : लवले प्रणिता मुरलीधर व अमित सिंह
प्रकाशक : पशु चिकित्सा एवं पशुपालन प्रसार विभाग, पशु चिकित्सा संकाय, उ०प्र० पंडित दीनदयाल उपाध्याय पशु चिकित्सा विज्ञान विश्वविद्यालय एवं गौ-अनुसंधान संस्थान (दुवासु), मथुरा

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Exam/Degree	University/ Board	Year of passing	Percentage	Subjects
High school	Maharashtra State Board	2011	86.00 %	Mathematics, Science, Social Sciences, Marathi, English
Intermediate	Maharashtra State Board	2013	68.83%	Physics, Chemistry, Biology, Marathi, English
(Graduation) B.V.Sc& A.H.	Maharashtra Animal & Fishery Sciences University, Nagpur (Maharashtra)	2019	71.02%	All subjects of Veterinary Science as per VCI regulation

10. Workshop attended : 2

Date: 10/05/22

Place: Mathura

Signature

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