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Original Research

Ethno-veterinary Practices Followed by Farmers for Treatment of Reproductive Disorders in Dairy Animals

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Abstract

The present study was purposively conducted to document the traditional knowledge related to treatment of reproductive disorders including late maturity, anoestrus, repeat breeding, retention of placenta, prolapse, abortion, stillbirth and dystocia of dairy animals in Alwar district of Rajasthan. Information was gleaned from 150 farmers, randomly selected, through personal interview with the help of open-ended schedule. It was observed that majority of farmers were using 'Indigenous Technical Knowledge' (ITKs) including grains, fruits, leaves and other part of herbs (or trees) as remedy for treatment while others "Do not have belief on ITKs for treatment" mostly of abortion, stillbirth and dystokia but some still believed in 'Totakas' (superstitions) to rectify reproductive disorders in dairy animals. The ITKs seem to be cheaper, locally and easily available even in remote areas. Thus, use of these ITKs may be encouraged after scientific validation.

Keywords: Dairy Animals, Farmers, Indigenous Technical Knowledge, Reproductive Disorders

Introduction

Livestock sector play an important role in rural livelihood in Rajasthan which further gain more importance because agriculture remain uncertain in the state due to dependency of arid and semi-arid zones on monsoon. In animal husbandry health care, along with feeding and management, is prerequisite for optimal productive and reproductive efficiency of dairy animals through different medicinal systems.

Knowledge which has been accumulated by the people over generations by observation, by experimentation and by handing over old people's experience and wisdom through words of mouth in any particular area of human endeavour is considered as indigenous technical knowledge. Indigenous technical knowledge is based on experiences, beliefs and customs which are internally consistent and logical to those holding them, but at odds with the objectively deduced findings of normal science (Ghosh and Sahoo, 2011). Modern medicine was thought to be able to solve almost all health problems of humans and animals. But this over-estimation of modern medicine has changed in the course of the 'green wave' since the 1970s, particularly in industrialized countries. The 'green wave' has been characterized by an increasing demand for natural products in the form of drugs, food and cosmetics, and was mainly triggered by the side effects resulting from the increasing use of chemicals in various areas of life including medicine.

The reconsideration of traditional medicinal systems in the industrialized world and the fact that modern medicine is too expensive for many developing countries were the main reasons for the decision of the World Health Organization (WHO) in the 1970s to promote traditional medicated systems by checking scientifically the efficacy of plants used in traditional medicine and to identify the principles responsible for genuine therapeutic effects (*De et al.,* 2004). The indigenous technical knowledge (ITK) regarding animal husbandry is considered as old as domestication of various livestock species. Although there are little documentation of these ITKs and there is danger of extinction of this knowledge. Thus, it has become imperative to collect and document these practices. Keeping this in view, the study was conducted to prepare an inventory of ethno-veterinary practices used for treatment of reproductive disorders of dairy animals in Alwar district of Rajasthan.

Materials and Methods

The study was purposely conducted in Alwar district of Rajasthan. The Alwar district having twelve tehsils, out of which three tehsils, viz. Kishangarh, Behror and Thanazagi, were selected randomly. From each selected tehsil, two villages were selected by simple random sampling technique. Twenty-five farmers from each village, who had at least one milch animal at the time of investigation, were randomly selected. Thus, 150 farmers were personally interviewed to get the first-hand information with the help of open-ended schedule to document various managemental practices including use of indigenous technical knowledge (ITKs) to handle reproductive disorder among dairy animals. Finally, these ITKs were tabulated and arranged based on their frequencies. Many farmers were using more than one ITK for a particular reproductive disorder hence counted in more than one category.

Results and Discussion

Late Maturity and Anoestrus

Late maturity is a condition in which animal do not come in heat even after attaining age of sexual maturity whereas anoestrus is a state of complete sexual inactivity with no sign of estrus. These two conditions were handled by the farmers as explained in Table 1. A cursory look on Table 1 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. During interaction with farmers it was explained by them that feeding of methi, bajara, guar and jiggery improve digestion, increase appetite and produce heat in the animal body which stimulate oestrus process in the positive manner. Other ITKs include: desi ghee, til cake with red lentil, green fermented guar, curd with boiled methi, and carrot seed with 'khand'. About 30.00 per cent farmers "Do not have belief on ITKs for treatment" of late maturity and anoestrus in dairy animals. Only 12.00 per cent farmers believe that carrying animal for grazing will bring the animals in heat as grazing will increase body activity. Seeralan (2004) reported that farmers gave ground powder of leaves of banyan tree, peepal tree, mango, neem and ashoka to animal @ 250g/day for five days to induce heat.

Table 1: Existing practices to manage the late maturity and anoestrus by the farmers

S. No.	Practices	Frequency	Percent
1	Boiled methi (*Trigonella foenum-graecum*) grain 1 kg/day fed to animal empty stomach for 5 days	135	90
2	Bajara (*Pennisetum typhoides*) grain 1 kg/day and jaggery ½ kg/day for 10-15 days	122	81.33
3	Boiled guar (Cymopsis tetragonoloba) and bajara (*Pennisetum typhoides*) ½ kg of each/day fed to animal for one week	92	61.33
4	Drench desi ghee ½ kg/day for 3-4 days	85	56.67
5	Do not have belief on ITKs for treatment	46	30.66
6	Til cake - 5 kg and 1½ kg red lentil (*Lens culinaris*) divided in three halves and fed to animal for 3 days	45	30
7	Green guar (*Cymopsis tetragonoloba*) covered air tight under pressure overnight and fed to animal in morning	30	20
8	Curd 1 kg/day and boiled methi (*Trigonella foenum-graecum*) grain ½ kg/day fed to animal for 3-5 days	25	16.67
9	Carrot seed (*Daucus carota*) 100 g mixed with 'Khand' (desi sugar) 250 g for 2-3 days	20	13.33
10	Avoid stall feeding, carry animal for grazing for 20-30 days	18	12

Repeat Breeding

Repeat breeding is a condition in which a cow or a heifer that is clinical normal, fails to conceive for three or more consecutive services, animal is considered as repeat breeder. Farmers handle this problem by using practices explained in Table 2.

Table 2: Existing practices to manage the repeat breeding by the farmers

S. No.	Practices	Frequency	Percent
1	Mahandi powder (*Lawsonia alba*) ½ kg/day in water drench to animal during oestrus	125	83.33
2	Disposal of affected animal	115	76.67
3	Acacia bark 300 g soaked in water over night and given to animal empty stomach in morning	107	71.33
4	Daikons (*Raphanus sativus* var. *longipinnatus*) 3-5 kg for 5-7 day with routine feed	95	63.33
5	Cow milk 1 lit. /day to buffalo in case of buffalo repeat breeder during oestrus and vice-versa	92	61.33
6	Barley (*Hordium vulgare*) flour 1 kg and ½ kg khimp (*Leptadenia pyrotechnica*) fed to animal with feed after service	68	45.33
7	Gular (*Ficus glomerate*) 200 g as single dose	56	37.33
8	Gokharu (*Tribulus terrestris*) 250 g seed as single dose	48	32
9	Change bull after two service	35	23.33
10	Milk 1lit. and 250 g mustard oil (*Brassica* spp.) before service, 1kg boiled methi (*Trigonella foenum-graecum*) grain next day of service and then feed only dry fodder for 10 days	25	16.67
11	Do not have belief on ITKs for treatment	20	13.33
12	Desi ghee ½ kg and 1lit. water mixed with fungal hyphae (Kai) as single dose	18	12
13	Boiled Rice (*Oryza sativa*) 1 kg/day for 5 days	12	8

A quick glance on Table 2 reveals that mahandi powder was most common ITK used by majority of farmers during oestrus after service in case of repeat breeders. Other important practices followed were: water soaked acacia bark, daikons, cow milk in case of buffalo repeat breeder and vice-versa, barley flour with khimp, and gular. While discussing with farmers it was observed that due to cold temperament of mahandi, daikons, gular, etc. were used to handle the cases of repeat breeding in dairy animals. Some farmers doubt the performance of breeding bulls and change the same after two services while majority of the farmers dispose their affected animals due to inability to bring their dairy animals in normal reproductive cycle. About 13.00 per cent farmers believed in allopathic treatment and "Do not have belief on ITKs for treatment" of repeat breeding in dairy animals. Sah (1996) reported that farmers fed to their animals only dry fodder up to 22 days following service.

Retention of Placenta

Retention of placenta is a condition in which animal fails to expel the foetal membranes within 12 to 24 hours after calving. During survey it was discussed that dairy farmer did not wait more than 8 hours and started treating their animal as explained in Table 3.

Table 3: Existing practices to manage the retention of placenta by the farmers

S. No.	Practices	Frequency	Percent
1	Naval of animal is smear with oil/ghee and warm for few minutes	134	89.33
2	2-3 railway tickets (thick paper) either with chapati or in luke warm water	125	83.33
3	Avoid milking of colostrums after calving till expel placenta	122	81.33
4	Keep animal in standing position till expel placenta	116	77.33
5	Drench 1-2 lit. sugar solution	108	72
6	Fed either neem (*Azadirachta Indica*) leaves or ½ kg barley (*Hordium vulgare*) grain or boiled rice	85	56.67
7	Ash 250 g dissolve in luke warm water and offer to animal	78	52
8	Fed methi grain (*Trigonella foenum-graecum*) ½ kg and ½ kg jiggery	76	50.67
9	Do not have belief on ITKs for treatment	40	26.67
11	Sugar ½ kg and 1 kg colostrums after 3-5 hours of calving	16	10.67
12	Tightly tie rope on horn in the shape of digit ‘8’	12	8
13	Fed 10-12 pieces of cloves (*Syzygium aromaticum*) in chapatti	8	5.33
14	Drench boiled foetal fluid in ½ cup ghee	6	4

Table 3 enunciate that majority of farmers were smear naval of animal with oil or ghee and warm for a few minutes in case of retention of placenta in dairy animals. Other important practices followed were: railway ticket (thick paper) either with chapati or in luke warm water, avoid milking of colostrums, keep animal in standing position till expel placenta, drench sugar solution, fed neem leaves or barley grain, and drench ash in luke warm water.

It was explained by the farmers during survey that by avoid milking of colostrums and feeding of above ITKs help to generate pressure on uterus thus, stimulate expulsion of placenta. About 26.67 per cent of farmers were “Do not have belief on ITKs for treatment” of retained placenta in dairy animals. Mohanty (1999) found that farmers fed boiled paddy, bamboo leaves, jack fruit leaves, tie jasmine root on the neck and apply lime paste on horn of animal in case of retained placenta. Das and Tripathi (2009) reported use of buds of marigold (*Calendula officinalis*) after 6 hours of parturition, and luke warm water in case of delayed expulsion of placenta in cows.

Prolapse

Uterine prolapse is the coming out of the uterus through the vulva commonly shortly after parturition and hanged out with the inner surface outer most whereas vaginal prolapse the protrusion of the vagina and sometimes with the cervix through the vulva. Both uterine and vaginal prolapse were treated in same way by the farmers as explained in Table 4. It is depicted from Table 4 that majority of farmers avoid long resting and rise elevation of ground from rear feet of affected dairy animals in case of prolapse. Other important ITKs used were: feeding bolus of ground styanasi seed and ‘Khand’ (desi sugar) in ghee/ oil, reduce feeding specially concentrate, feeding of pieces of areca nut soaked in ghee, and drench desi ghee and fed pumpkin. It was noticed that, due to cold temperament, styanasi seed and ‘Khand’, areca nut, pumpkin, multani (type of clay), mishri, blue ink were used by the farmers to control prolapse of dairy animals. Majority of farmers correct mild prolapse by themselves using lather shoe while 16.67 per cent “Do not have belief on ITKs for treatment” of prolapse in dairy animals. Majority of farmer reduce feeding specially concentrate so that less energy will be produce as prolapse is thought to be result of high body energy. Rao *et al* (2014) reported that grind 100 gm. seeds of Solanum xanthocarpum (Fasarkateli) mixed with equal quantity of wheat flour and 150 gm. of ghee. 350 gm. of this mixture is given orally once daily for a week to cows for treatment of uterine prolapse by farmers in field condition.

Table 4: Existing practices to manage the prolapse by the farmers

S. No.	Practices	Frequency	Percent
1	Avoid long resting and rise elevation of ground from rear feet	130	86.67
2	Styanasi (*Argemone mexicana*) seed 100 g and 150 g 'Khand'(desi sugar) ground and make bolus in ghee/ oil and fed to animal	118	78.67
3	Reduce feeding specially concentrate	108	72
4	Correct mild prolapse manually themselves using lather shoe	105	70
5	Fed 10-15 pieces of areca nut (*Areca catechu*) soaked in ghee	96	64
6	Desi ghee 250 g/day + 2-3 kg/day pumpkin (*Cucurbita pepo*) fruit/ lauki (*Lagenaria siceraria*) fed to animal for 4-5 days	85	56.67
7	Warming of rear part of animal	48	32
8	Do not have belief on ITKs for treatment	25	16.67
9	Gram (*Cicer arietinum*) 3 kg and 1.5 kg multani (type of clay) in 3 doses	18	12
10	Mishri (sugar) 100 g, basan (flour of gram) 500 g and 250 g ghee for 2 days	15	10
11	Drench ¼ lit./day blue ink for 4 days	8	5.33

Abortion and Stillbirth

Abortion is the expulsion of dead fetus of recognizable size before full term of the gestation period whereas stillbirth is the expulsion of dead fetus after full term of the gestation period.

Table 5: Existing practices to manage the abortion and stillbirth by the farmers

S. No.	Practices	Frequency	Percent
1	Drench desi ghee @ ½ lit. /day for 3-4 days	95	63.33
2	Do not have belief on ITKs for treatment	82	54.67

Table 5 shows that abortion and stillbirth were managed by majority of farmers through drenching of desi ghee while others "Do not have belief on ITKs for treatment" of these reproductive disorders in dairy animals. During interaction it was elucidated by farmers that miscarrying resulted from weakness hence drench desi ghee to boost energy level for sound health status.

Dystocia

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

Table 6: Existing practices to manage the dystocia by the farmers

S. No.	Practices	Frequency	Percent
1	Do not have belief on ITKs for treatment	88	58.67
2	Force animal to move on uneven ground	65	43.33
3	Rolling of animal	60	40

The results in Table 6 show that majority of farmers "Do not have belief on ITKs for treatment" of dystocia in dairy animals while others force animal to move on uneven ground, and allow rolling of animal on ground when expecting uterine torsion.

Conclusion

It is concluded from the findings that dystocia, abortion and stillbirth were have limited use of ITKs for treatment in dairy animals by farmers and remaining selected reproductive disorders were treated by farmers using different type of grains and herbs in different problems. Though, all the ITKs have been found valid and effective as per the observations made by the farmers, but they need to be validated scientifically and experimentally along with the identification and isolation of active ingredient present in the material used. Such studies will provide scientific

rationality for use of ITKs in future. Since, the ITKs seem to be cheaper, locally and easily available even in remote areas and have lesser side effects thus use of these ITKs may be encouraged.

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Conflict of Interests

There is no conflict of interest.

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