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## Ethno-veterinary practices for the management of reproductive disorders in dairy animals in rural Punjab

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### Abstract

The study was conducted to document various ethno-veterinary practices (EVPs) followed at the time of natural calving for expulsion of placenta, anoestrus and repeat breeding in dairy animals of rural Punjab. Total 300 respondents were selected randomly from the villages of Punjab. Data was collected through a well structured pre-tested schedule through personal visits to the respective farmers. After analysis of the data, the farmers of Punjab were found to be using 14 different EVPs practices for reproductive management of their animals. The EVPs employed in management of reproductive disorder includes- *Desi Karrah*, colostrum suckling by the calf, prepartum butter feeding, feeding of jaggery or cotton seeds, feeding of linseed cake or jaggery or *dalia* and maize. These remedies were mostly prepared by pulverization, soaking/boiling in water and administered *per os*. As per farmers' viewpoint, these EVPs proved to be very effective. Scientific documentations also proved their validation.

**Keywords:** Buffalo, cattle, ethno-veterinary practices, Punjab, reproductive disorders

### Introduction

Ethno-veterinary practice (EVP) is based on folk beliefs, traditional knowledge, skills, methods and practices to cure diseases and maintain health of animals <sup>[1, 2]</sup>. Traditional veterinary medical knowledge like all other traditional knowledge systems is handed down orally from generation to generation. EVP is disappearing because of rapid socioeconomic, environmental, technological changes and as a result of loss of cultural heritage losses under the guise of civilization <sup>[1, 3]</sup>. Affordability is one of the most important virtues of the ethno-veterinary system. Drawbacks to modern veterinary practice include questionable quality of allopathic drugs, development of chemo-resistance in livestock and user unfriendly effects such as high antibiotic and hormone residues in the milk and other animal products <sup>[4, 5, 6]</sup>. EVP is used for the maintenance of good animal health in developing countries <sup>[7]</sup>. The present study was undertaken to collect information on EVPs being used by the dairy farmers in the rural areas of Punjab over a one-year span of time for the management of reproductive disorders in their dairy animals.

### Methodology

Data was collected randomly from 300 dairy farmers of rural Punjab through a well structured pre-tested schedule through personal visits to the respective farmers. For better representation of different regions of Punjab, the geographical area was divided into three zones- Sub-mountainous region, Central Planes and South-Western Plains. Information regarding use of any EVP at the time of calving for expulsion of placenta, during anoestrus and repeat breeding conditions were collected. Out of various variables few numbers of variables were selected after discussing with experts which includes- age of the farmer, educational status, monthly income, herd strength, experience in raising animals, awareness level, EVP used in animals, reason of using EVP, source of EVP knowledge etc. Research data was transferred from interview schedule to the master sheets. Information was quantified and converted to numerical values whenever necessary. The data has been treated by statistical tools and tests which are- Arithmetic mean (A.M), Standard Deviation (SD), Chi-square test ( $\chi^2$ ), Percentage etc. Efficacy of the particular EVP was judged from the outcome of that remedy as reported by the farmer. Later on its validity was confirmed by reviewing already published scientific reports.

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## Results and Discussion

Majority of the respondents were aged between 30-50 years (57.6%). Most of them (54.6% respondents) were rearing 1-5 animals for 10-15 years (39.3% respondents). They had a monthly income between 1000-5000 rupees (57% respondents). Similar findings were reported earlier<sup>[8]</sup>.

EVPs during natural calving for placental expulsion were followed by 18.3 per cent (n=55) respondents out of which 8 per cent of the dairy farmers were employing colostrum suckling by the calf, 5.66 per cent farmers were using a *Desi Karrah* comprising of Ajwain (*Trachyspermum ammi*), dried ginger (*Zingiber officinale*) and jaggery and another 4.66 per cent farmers were using butter prepartum. *Desi Karrah* was usually given to animals immediately after calving. The farmers believe that it helps in easy and early expulsion of placenta. It also maintains the appetite of the animal following calving. Feeding of *Desi Karrah* to dairy animals for placental expulsion was also reported<sup>[9]</sup> although they reported ten items in the *Karrah* which are *sundh, ajwain, methe, sowae, karru, kali jiri, dhauli jiri, big ilachi, grey pepper and saunf*<sup>[9]</sup>. *Ajwain* is reported to have antiseptic, antifungal/antibacterial and antihelminthic effects<sup>[10]</sup>. It contains thymol which has been reported to be an antispasmodic, germicidal and antifungal agent. Thymol is advocated to enhance the immune system of the body<sup>[11]</sup>. Ajwain also has galactogogic, abortifacient action and also acts as a blood coagulant and helps in reducing blood loss following calving<sup>[12]</sup>. Jaggery has great nutritive and medicinal value. Jaggery contains proteins, vitamins and minerals which are essential constituents for the body. It is also a potent source of iron and copper<sup>[13]</sup>. Jaggery purifies the blood and prevents the rheumatic afflictions and disorders of bile<sup>[14]</sup>. Third component of this *karrah* is dried ginger which contains volatile oils – gingerol and gingerol. The later are anti-inflammatory, antioxidant, chemo-protective, anti-viral, anti-emetic in action<sup>[15]</sup>. This also increases the production and release of digestive enzymes<sup>[16]</sup>.

The farmers who use butter or butter oil following calving are of the view that it provides energy to the animal needed for expulsion of placenta and for synthesis of milk in udder. Prepartum feeding of butter to animals has also been reported in other studies<sup>[17]</sup>. Butter is a rich source of fatty acids which provide energy to the animal during calving and minimize calving stress<sup>[18]</sup>. Colostrum feeding to calf through suckling is a scientific technique followed since old times. Suckling releases oxytocin which induces uterine contraction and helps in early expulsion of placenta<sup>[19]</sup>.

About 63 per cent of the farmers of Punjab encountered anoestrus in their animals. It is quite a big problem in Punjab especially in post-partum buffaloes. Anoestrus in buffaloes in Punjab has also been reported<sup>[8, 9, 20]</sup>. Five different EVPs were found to be used by 43 per cent farmers of Punjab. Around 9.33 per cent farmers were feeding cotton seed, Jaggery (14.6%), turmeric paste (3%), *dalia* and maize (8.33%), changing breeding bull (8.66%) and 19 per cent were using combination of jaggery and cotton seed for curing anoestrus animals (Table 2). The most common and most successful of the EVPs is feeding of either cotton seeds (*Gossypium hirsutum*) or jaggery alone or in combination. This practice is commonly followed in Central Plains and South-Western regions of Punjab because of easy availability of cotton seeds in these parts of Punjab. The practice of feeding cotton seeds to animals suffering from reproductive problems has been reported in other studies also<sup>[21]</sup>. Most of

the time whole cotton seeds are fed to animals after boiling them. The farmers of Punjab believe that raw cotton seeds contain certain poisonous material which is harmful to their livestock. So, boiling detoxifies the harmful action of cotton seeds. The whole cotton seed is the unprocessed and unadulterated oil seed that has been separated from the cotton fiber. It is a rich source of energy, protein and highly digestible fiber<sup>[22]</sup>. It is unique in that it represents the chemical composition of forage, grain and protein supplements. Therefore, it can be substituted for any of these components. Cotton seeds contain phytoestrogens that mimic mammalian estrogens thus enhancing fertility of cattle and buffaloes<sup>[21]</sup>. Cotton seed helps in smooth muscle contraction, thus, improving blood circulation to reproductive organs and enhancing uterine tone<sup>[23]</sup>. Feeding of cotton seeds along with jaggery further improves the success rate of inducing oestrus in anoestrus animals. A success rate of 94 per cent was observed in the present study. Inclusion of jaggery might have improved the energy level along with certain minerals leading to higher success rate. Use of jaggery in anoestrus has been reported in literature<sup>[9]</sup>.

Jaggery alone has also been employed by around 15 per cent of the farmers in anoestrus animals with 84 per cent success rate. The farmers of Sub-mountainous areas do not have easy access to cotton seed or in other words cotton seeds are too costly for them. Therefore, they rely on jaggery only.

Other EVPs in anoestrus include use of turmeric paste (*haldi*) mixed with common salt. The same has also been reported in other studies<sup>[21, 24, 25, 26]</sup>. Maize is termed as “Nutraceutical”, which contains 75 per cent starch, 8-10 per cent protein and 4-5 per cent lipids<sup>[27]</sup>. *Dalia* contains 78.10 per cent starch, 14.70 per cent protein, fat 2.10 per cent, minerals 2.10 per cent and considerable proportions of vitamins (thiamine and vitamin-B) and minerals (zinc, iron) and good source of traces minerals like selenium and magnesium, nutrients essential to health<sup>[28]</sup>. The use of *dalia* and maize in anoestrus animals was reported in earlier literature also<sup>[27]</sup>.

Use of EVPs for repeat breeding problem in dairy animals was reported by 34 per cent farmers only. In Punjab, repeat breeding is mainly a reproductive problem in cattle<sup>[8, 29]</sup> and majority of the farmers ask their veterinarian to cleanse the uterus with some antibacterial solution even if there is no infection in the uterus. This is the main reason for comparatively low number of farmers using EVPs. Jaggery (10.33%), maize & *dalia* (6.33%), jaggery and maize (4%), linseed cake (7.66%) and changing breeding bull (6%) for managing repeat breeding (Table 3) are the major EVPs. The farmers who used EVPs enlisted five remedies and the most common being feeding of jaggery. Majority of cattle in rural Punjab are energy deficient<sup>[8, 29]</sup> and feeding of jaggery might have improved their energy status leading to alleviation of repeat breeding syndrome. Use of jaggery in repeat breeding was reported<sup>[9]</sup>. The results got further improvement by inclusion of maize along with jaggery. This practice has been reported<sup>[27]</sup>.

Feeding of linseed cake in repeat breeding also improves the conception rate. Linseed contains high levels of dietary fiber, fat and protein along with large number of micronutrients including thiamine, riboflavin, niacin, pantothenic acid, calcium, phosphorus, magnesium, potassium and zinc<sup>[30]</sup>. All these nutrients might have lessened the deficiencies in repeat breeding cows leading to improved conception rate. Use of linseed cake in repeat breeding has also been reported<sup>[9]</sup>. The use of *dalia* and maize in repeat breeding has been reported in

earlier literature [27] and the changing of breeding bull (replacing the infertile/sterile bull during natural service) at the time of anoestrus and repeat breeding has been reported [7]

which also helps in improvement of conception rate in repeat breeding animals.

**Table 1:** EVPs used during natural calving for placental expulsion

EVP used	Dosages	Administration	Positive response as cited by the respondents
Colostrum suckling by the calf (n=23)	-	-	n=17 (73.9%)
<i>Desi karrah</i> (n=18) (Ajwain + Jaggery + Dried ginger)	450-500 gm (100 gm+250-300 gm+100 gm)	Given P.O. once immediately following calving	n=16 (88%)
<i>Butter</i> (n=14)	500-750 gm	PO for 4-5 days before parturition	n=10 (71%)

**Table 2:** EVPs used in anoestrus

EVP used	Dosages	Administration	Positive response as cited by the respondents
Jaggery alone (n=44)	0.5-1.0 kg	Given PO for 20 days	n=37 (84%)
Cotton seed alone (n=28)	250-500 gm	Boiled and given PO for 5-10 days	n=24 (86%)
Turmeric paste (n=09)	Mixed with salt	Rubbed in the back	n=5 (55%)
Dalia and maize (n=25)	250 gm + 250 gm	Given P.O. for 15-20days	n=19 (76%)
Jaggery and cotton seed (n=57)	250 gm + 250 gm	Boiled and given PO for 10-15 days	n=54 (94%)
Changing the breeding bull (n=26)	-	-	n=8 (30%)

**Table 3:** EVPs used in repeat breeding

EVP used	Dosages	Administration	Positive response as cited by the respondents
Jaggery (n=31)	0.5-1.0 kg	Given PO for 15-20 days	n=28 (90%)
Linseed cake (n=23)	300-500 gm	Given PO for 5-10 days	n=18 (78%)
Dalia and maize (n=19)	250-500 gm + 250-500 gm	Pulverized, Given PO for 20 days	n=15 (78%)
Jaggery and maize (n=12)	250 gm + 250 gm	Pulverized, Given PO for 20 days	n=11(91%)
Changing breeding bull (n=18)	-	-	n=5 (1%)

## Conclusion

Farmers still rely on ethno veterinary medicines for reproductive management of their animals. However these practices should be documented by the institutes for their scientific basis and can then be popularized for production of organic livestock produce. Exclusive awareness campaigns will be needed in a comprehensive way for promoting valid ethno-veterinary practices in the livestock farmers.

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## References

- Mathias-Mundy E, McCorkle CM. Ethnoveterinary medicine: an Annotated Bibliography. Bibliographies in Technology and Social Change. Technology and Social Change Programme, Iowa State University, Ames, Iowa 50011. USA. 1989; 6:199.
- Tabuti JRS, Dhillon SS, Lye KA. Ethno veterinary medicine for cattle (*Bos indicus*) in Bulamogi county Uganda: plant species and mode of use. J Ethnopharm. 2003; 88:279-286.
- Nfi AN, Mbanya JN, Ndi C, Kameni A, Vabi M, Pingpoh D *et al.* Ethno veterinary medicine in the northern provinces of Cameroon. Vet Res Commun. 2001; 25:71-76.
- Fielding D. Ethnoveterinary medicine in the tropics-Key issues and the way forward? Paper presented to the tropical agricultural association seminar on Sep.26th

1998, on local knowledge in tropical agricultural research and development. Durham University, Durham, UK, 1998.

- Monteiro AM, Wanyangu S, Kariuki DP, Bain R, Jackson F. Pharmaceutical quality of anthelmintics sold in Kenya. Vet Rec. 1998; 142:396-98.
- Mathias E. Ethno veterinary medicine: Harnessing its potential. Vet. Bull. 2004; 74(8):27-37.
- Kudi CA. Ethnoveterinary, complementary and low cost treatment and management of working animals. Paper presented at Workshop on The Challenge of Improving the Transport Animal Welfare in the World: Ways Forward, held at Silsoe Research Institute, Oxford. World Association for Transport Animal Welfare and Studies (TAWs). April 24, 2003. UK. 2003.
- Sharma RK. Studies on minerals and hormonal interventions on reproductive performance of buffaloes in different agro-climatic Zones of Punjab. PhD. Thesis, Punjab Agricultural University, Ludhiana, 2004.
- Sharma RK, Saini AL. Ethno-veterinary practices followed by farmers. Compendium-National Symposium on Emerging Management Concepts for Sustainable Livestock and Poultry Production, XIX Annual Convention of Indian Society of Animal Production and Management, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, 2011, 187-193.
- Morsi NM. Antimicrobial effect of crude extracts of *Nigella sativa* on multiple antibioticresistant bacteria. Acta Microbiologica Polonica. 2000; 49(1):63-74.
- Nagalakshmi G, Shankaracharya NB, Puranaik J. Studies on chemical and technological aspects of Ajwain (*Trachyspermum ammi*) seeds. J Food Sci Tech. 2000; 37:277-81.
- Kamal J, Nisha D, Narender T, Sunil T, Raneev T.

- Trachyspermum ammi* (Ajwain): A comprehensive review. *Intl Res J Pharmacy*. 2012; 3(5):133-35.
13. Beguin GS. Jaggery is natural high energy food source quickly replaces lost vigor. *J Food Sci Tech*. 1978; 39(5):549-51.
  14. Sahu AP, Saxena AK. Enhanced translocation of particles from lungs by jaggery. *Environ Health Perspective*. 1994; 102(5):211-14.
  15. Bhandari U, Sharma JN, Zafar R. The protective action of ethanolic ginger extract in cholesterol feed rabbits. *J Ethnopharm*. 1998; 61(2):167-71.
  16. Dorman HJ, Deans SG. Antimicrobial agents from plant: Antibacterial activity of plant volatile oils. *J Applied Microbiol*. 2000; 88:308-16.
  17. Wirtu G, Adugna G, Samuel T, Kelbessa E, Geleto A. Aspects of farmers' knowledge, attitudes and practices of animal health problems in central Ethiopia. *Proceedings of International Conference Ethnoveterinary Medicine: Alternatives for Livestock Development on Nov 4-6, 1997*. BAIF Development and Research Foundation. Pune, India. 1997; 1:34-44
  18. Padmakumar V. Ethno veterinary medicine in Kerala: Alternatives for livestock development. *Proceedings of International Conference Ethnoveterinary Medicine: Alternatives for Livestock Development on Nov 4-6, 1997*. BAIF Development and Research Foundation. Pune, India. 1997; 1:26-27.
  19. Muhammad G, Khan MZ, Hussain MH, Iqbal Z, Iqbal M, Athar M. Ethno veterinary practices of owners of pneumatic-cart pulling camels in Faisalabad city. *J Ethnopharm*. 2005; 97:241-46.
  20. Singh J, Verma HK, Singh KB, Singh N. Knowledge level of dairy farmers about the selected management practices in Punjab. *J Res, Punjab Agricultural University*. 2004; 42(3):347-354.
  21. Dilshad SMR, Rehman N, Iqbal Z, Muhammad G, Iqbal A, Ahmad N. An inventory of the ethnoveterinary practices for reproductive disorders in cattle and buffaloes, Sargodha district of Pakistan. *J Ethnopharm*. 2008; 117:393-402.
  22. Myer RO. Whole cottonseed for beef cattle rations. *J Plant Nutr*. 2003; 31(10):1774-85.
  23. Mans DRA, Toelsie JR, Ramjiwan K, Van brussel A, Orié S, Mohan S. Assessment of eight popularly used plant derived preparation for their spasmolytic potential using the isolated guinea pig ileum. *Pharmaceutical Biol*. 2004; 42:422-29.
  24. Lans C, Brown G. Ethno veterinary medicines used for ruminants in Trinidad and Tobago. *Prevent Vet Med*. 1998; 35:149-63.
  25. Samal PK, Shah A, Tiwari S, Mehra B, Agrawal DK. Indigenous animal health care practices in Indian Central Himalaya: Empirical evidences. *Ind J of Traditional Knowledge*. 2003; 2(1):40-50.
  26. Nagnur S, Channal G, Channamma N. Traditional dairy herd management practices during pregnancy and calving. *Indian J. Traditional Knowledge*. 2006; 5(2):243-244.
  27. Pieroni A, Howard P, Volpato G, Santoro RF. Natural remedies and nutraceuticals used in ethno-veterinary practices in Inland southern Italy. *Vet Res Commun*. 2004; 28:55-80.
  28. Fraley RT. Improving the nutritional quality of plants. In: *Proceedings of the 10<sup>th</sup> IAPTC & B Congress*. Plant Biotechnology 2002 and Beyond. Orlando, Florida, USA. 2002, 61-67.
  29. Singh G, Singh GB, Dhaliwal GS. Studies on reproductive status of rural buffaloes in summer. *Ind J Animal Reprod*. 1989; 10:151-53.
  30. Kolodziejczyk FP, Kezlowaska J, Kazbowski R. Linseed in health food. *Zemed Tech*. 1995; 4:113-16.