Brief Biodata

Name	:	Dr PRAMOD SINGH
Designation	:	PRINCIPAL SCIENTIST
Discipline	:	ANIMAL NUTRITION
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Education qualification

Degree	Subject	Institute
Graduation; B.Sc.	Zoology, Botany & Chemistry	Kanpur University, Kanpur (UP)
Post-Graduation; M.Sc. (Dairying)	Animal Nutrition (Major), Animal Physiology and Biochemistry etc	National Dairy Research Institute, Karnal –132 001
Ph.D.	Animal Nutrition	National Dairy Research Institute, Karnal –132 001
PG Diploma in Analytical Research Techniques	Animal Nutrition, Animal Physiology, Biochemistry, Dairy Chemistry, Microbiology, Animal Genetics & Breeding, Dairy Technology, Instrumentation, and Dairy Engineering, etc.	National Dairy Research Institute, Karnal –132 001

Area of research

1. Engaged in production and estimation of aflatoxins, estimation of ^{15}N stable isotope and radio tracers like ^{14}C, ^{32}P, ^{3}H and ^{51}Cr, determination of immunoglobulins, ceruloplasmin, SOD, acid/alkaline phosphatase, and feeding & management of experimental animals and poultry during my association with project "Studies on the influence of different levels of aflatoxins on rumen functions; on cellular protein dynamics; immunity breakdown and liver functions in ruminants and poultry and elucidation of tolerance limits for practical feeding" (ICAR - Professor of Eminence Scheme at NDRI, Karnal from April 1986 to Dec 1987). From Jan 1988 to Mar 1998, looked after the maintenance, operation of precision instruments viz. gamma scintillation counter, beta liquid scintillation counter, high performance liquid chromatographs (HPLC), gas

chromatographs (GC), ^{15}N analyzer, atomic absorption spectrophotometers, GC-mass spectrometer, ion selective analyzers etc. at DCN Division, National Dairy Research Institute, Karnal.

2. The 'Degnala' disease has remained a concern in buffaloes for which Selenium (Se) toxicity was considered a major cause. Primarily, the biochemical changes occur due to replacement of sulphur (S) with Se in S containing amino acids (Met and Cys). I developed new method for Se-Met & Se-Cys analysis from protein hydrolysate samples on HPLC using PICO-Tag chemistry and thus facilitated the metabolic study of Se-Met & Se-Cys cattle and buffalos.
3. Formulation and preparation of cold processed urea molasses mineral blocks. With use of novel mixing sequence for the preparation of urea molasses mineral blocks provides a solution for better utilization of coarse feeds by the cattle.
4. Nutritional evaluation of non-conventional/ alternative feed resources for brackishwater aquaculture species for development of economical feeds.
5. Survey of equine feeding practices and evaluation of alternative feed resources for different categories.
6. Development of (a) novel HPLC methodology for analysis of 28 pesticides from variety of samples (b) glass device for the evaporation of solvents under inert atmosphere, and (c) technology to reduce the pesticide level in milk. Dietary supplementation of charcoal at 2% level reduced the mammary excretion of monocrotophos by 27% in milk of goats.
7. Kinetics of ruminal mineral release *in-sacco* from different feedstuffs and grading of several feed stuffs on the basis of content and release of mineral elements.
8. Formulation and preparation of Complete Feed Blocks (CFB) for dairy animals. Several CBFs were formulated for different categories of animals like growing claves and lactating cattle with use of crop residues viz., stovers of maize, job's tear, paddy straw, dry jungle grasses and tree leaves etc. Tree leave based CFB may also be used by goats as prophylactics against the gastrointestinal parasites.
9. High quality green fodders like berseem and lucerne were introduced in acidic soil conditions and demonstrated for cultivation during winter season in Meghalaya. Multicut sorghum, bajara, maize, job's tear can be taken along with or without cowpea, soybean, ricebean during rainy season. Dairy shed effluents may effectively be used for cultivation of berseem and oats during winter season. Parari foliage and broom grass may be excellent green fodder along with grass silage during lean period.
10. Preparation of quality silage, having probiotics from orchard wasted fruits for feeding of pigs. Development of process for Bag Silage preparation from the local grasses suitable for Livestock feeding.
11. Development of lactobacillus based probiotics for different livestock species, and feeding package for pigs of NEH region.
12. Improvement of semen quality in Frieswal bulls through dietary supplementation of mineral and botanicals.

13. Rumen microbiome studies involving Sahiwal and Frieswal breeds of cattle and rumen microbiome vis-a-vis metabolome of indigenous cattle.
14. Quality augmentation of alternate feed resources through ensiling and use of additives for quality improvement of fodder silage.
15. Development of '[kfut vuqiwjd feJ.k' or 'Mineral Supplement' for the feeding of dairy animals especially in the regions of western Uttar Pradesh and hills.
16. For tackling the semen quality related problems in breeding bulls, a combination of different plant based materials LkhvkbZvkjlh&'kqdzo/kZu or 'CIRC-SHUKRAVARDHAN' has been developed.

Future research interests involve the studies on rumen microbiome vis-à-vis metabolome of important cattle breeds, improvement of bull semen quality, expansion/improvement of available nutrition/cattle feed resource base and improvement of management practices for small dairy farmers.

Fellowships/Awards etc.

1. Eligibility for 'Lecturership and Assistant Professorship' during 1996, through National Eligibility Test- 1995, by- Agricultural Scientists Recruitment Board, New Delhi.
2. Awarded 'Senior Research Fellowship' during 2000-2003 by- ICAR- National Dairy Research Institute, Karnal.
3. Awarded 3rd prize for article titled '*Kukkut va pashu ahar mein aflatoxin ki samasya aur niyantran'* during 2006, by- Nagar Rajbhasha Karyanvayan Samiti, Central Power Research Institute, Bangalore.
4. Awarded 2nd prize for the research paper titled *'Doodh main keetnashakon ki vishlashan vidhi avam akalan'* (poster presentation) during 2008 by- ICAR-National Dairy Research Institute, Karnal.
5. Conferred Best Paper Presentation Award for paper on "Assessment of semen quality parameters on dietary supplementation of herbal mixture in Frieswal bulls during XIX Biennial International Conference of Animal Nutrition Society of India, Nov 16-18, 2022 at GADVASU, Ludhiana.
6. Conferred 2nd Best Paper Presentation Award for paper on 'fermentation characteristics of silage prepared (in vitro) from vegetable waste' during technical session 'Nutrigenomics and Rumen Biotechnology' under Animal Nutrition Association -XII Biennial Conference on 16-18 February 2023 at DUVASU, Mathura (UP).
7. Conferred 2nd Best Paper Presentation Award for paper on 'Effect of additives on preparation of silage (in vitro) from green carrot tops' during XX Biennial International Conference of Animal Nutrition Society of India, Jan 23-25, 2024 at Madras Vety College, TANUVAS, Chennai.

Selected Publications :

1. Ahmad Ali, S., Syama Dyal, J., Pramod Singh and Ambasankar, K. (2002). Effect of dietary protein levels on its *in vitro* digestibility in the cultured shrimp *Penaeus indicus*. In: Fifth Indian Fisheries Forum Proceedings. S. Ayyappan, J.K. Jena and Mohan Joseph (Eds). AFSIB, Mangalore and AoA, Bhubneshwar, India. Pp 67-71.
2. Syama Dayal, J., Ahamad Ali, S., Ambasankar, K. and Pramod Singh (2003). Effect of dietary protein level on its in vitro and in vivo digestibility in the tiger shrimp *Penaeus monodon*. Indian Journal of Marine Sciences 32 (2): 151-155.
3. Chhabra, Aruna and Pramod Singh (2005) Antinutritional factors and contaminants in animal feeds and their detoxification: A Review. Indian J. Anim. Sci., 75(1): 101-112.
4. Pramod Singh and Chhabra, Aruna (2005) Biodegradation of monocrotopho by rumen microbes. Indian J. Anim. Nutr., 22(4): 253-256.
5. Singh, Pramod and Chhabra, Aruna (2008). Influence of dietary activated charcoal on carryover of monocrotophos in goat milk. Indian J. Dairy Sci., 61(2); 127-135.
6. Pal, D.T., Singh, Pramod, Prasad, C.S. and Sampath, K.T. (2011) Mineral release kinetics in the rumen from five commonly available dry fodders. Indian Journal of Animal Science 81(9): 954-960.
7. R. Laha, M. Das, A. Goswami and Pramod Singh (2012). A clinical case of *Babesiosis* in a crossbred cow of Meghalaya. Indian Journal of Animal Research, 43(3): 302-305.
8. R. Laha, M. Das, A. Goswami and Pramod Singh (2012). Loss of milk production due to *Babesia bigemina* infection in a crossbred cow: A case study. Journal of Protozool. Res., 22: 6-9.
9. Shakuntala, I., Das, Rajib, Sanjukta, Rajkumari, Singh, Pramod, Dubal, Z.B. and Kumar Suresh (2012). PCR-based detection of *Streptococcus agalactiae* from milk of bovine subclinical mastitis. Indian Journal of Animal Science, 82(9): 78-80.
10. Manoj Kumar, M.H. Khan, Pramod Singh, S.V. Ngachan, D.J. Rajkhowa, A. Kumar and M.H. Devi. (2012). Variable lime requirement based on differences in organic matter content of iso-acidic soils. Indian Journal of hill farming. Indian Journal of Hill Farming 25(1): 26-30.
11. Pramod Singh, S. Senani, C.S. Prasad, S.B.N. Rao (2013). Manipulation of Conjugated Linoleic Acid in Milk and Meat through Dietary Management in Ruminant Animals: A Review. Indian Journal of Hill Farming 26(2): 1-15.
12. Pal, D.T., Singh, Pramod, Prasad, C.S., Verma Swati and Gowda, N.K.S. 2015. Mineral release kinetics of common tropical green forages in the rumen of cattle. *Indian Journal of Animal Sciences* 85 (7): 774–780.
13. Chand N., Tyagi S., Prasad, R., Dutta, D., Sirohi, A.S., Singh, P. and Sharma A. 2017. Assessment of lead and cadmium status and its effect on biochemical profile of cattle reared around industrial effluent contaminated area. International Journal of Livestock Research 7(8):183-188.