



CENTRE OF ADVANCED FACULTY TRAINING ANIMAL NUTRITION Indian Veterinary Research Institute, Izatnagar

INTRODUCTION

Animal Nutrition Division was established in 1936 at Indian Veterinary Research Institute, Izatnagar. The division has laboratories named as : energy and protein nutrition, rumen microbiology, feed technology, unconventional feed, mineral and vitamin nutrition, clinical and pet nutrition. On the basis of performance of this division during last eight decades, the Indian Council of Agricultural Research conferred the status of Centre of Advanced Studies (CAS) in 1995, which was recently renamed as Centre of Advanced Faculty Training in Animal Nutrition in 2009. Since 1995 the Division has conducted 36 short term training courses and imparted training to 558 scientists and teachers of ICAR Institutes and State Agricultural Universities.

OBJECTIVES OF CAFT

To impart training to the scientists and teachers of Universities and Research Institutions in the area of Animal Nutrition.

Faculty: Name & Designation (as on 30.09.2011):

S. No.	Name	Designation	Area of expertise
1	Dr. D. N. Kamra	Principal Scientist	Rumen Microbiology
2	Dr. R. S. Dass	Principal Scientist	Minerals and Vitamins
3	Dr. A. K. Garg	Principal Scientist	Minerals and Vitamins
4	Dr. L. C. Chaudhary	Principal Scientist	Rumen Microbiology
5	Dr. Putan Singh	Principal Scientist	Feed Technology
6	Dr. A. K. Verma	Principal Scientist	Pig Nutrition
7	Dr. A. K. Pattanaik	Senior Scientist	Pet and Clinical Nutrition
8	Dr. N. Dutta	Senior Scientist	Protein Nutrition
9	Dr. V. B. Chaturvedi	Senior Scientist	Energy Metabolism
10	Dr. S. K. Saha	Senior Scientist	Un-conventional Feeds
11	Dr. Asit Das	Senior Scientist	Wild Life Nutrition
12	Dr. Neeta Agarwal	Technical Officer	Molecular Biology

HUMAN RESOURCE DEVELOPMENT

Particulars of Short Courses / Training programs for HRD conducted during XI plan period

S.No	Name of the Program	Period	No. of Participants		
			Internal	External	Total
1.	Nutritional and Biotechnological Tools for Economic Livestock Production	Nov. 15- Dec. 5, 2007	0	17	17
2.	Animal Nutrition for Better Productivity and Health	Feb.13-Mar.4, 2008	0	12	12

3.	Emerging Trends in Nutrition of Wild and Zoo Animals	Nov. 28 – Dec. 19, 2008	0	12	12
4.	Nutritional Strategies for Sustainable and Green Livestock Production	September 10-30, 2009	0	22	22
5.	Emerging Challenges in Animal Nutrition	March 5-25, 2010	0	11	11
6.	Nutritional Interventions for Clean and Green Livestock Production	February 5-26, 2011	0	22	22
7.	Feeding Management of Dairy Animals	August 22-24, 2011	0	14	14
8.	Microbial and Functional Feed Supplements to Improve Livestock Productivity	07-27 Sept., 2011	2	13	15
9.	Newer approaches for feed Security and food security	09-29 Feb., 2012			19

INFRASTRUCTURE DEVELOPMENT (EQUIPMENTS ETC.):

1. Gas liquid chromatography
2. Electronic balance
3. UV-Vis Spectrophotometer

RENOVATION OF LECTURE ROOM/LABORATORIES:

LECTURE HALL

1. Sitting arrangement – for 80 persons
2. Public address system
3. Over head projector
4. Slide projector
5. Black board/White board
6. Color TV
7. VCR

COMPUTER ROOM

1. Computer Pentium with UPS
2. Dot matrix printer
3. Laser printer
4. Computer chairs
5. Floor carpet
6. Air conditioners

LIBRARY UPGRADED

1. Furniture for sitting of 15 persons
2. Books
3. Display panels
4. Photocopier

5. Electronic typewriter

AWARDS/RECOGNITIONS

S.No.	Name of Award	Year	Awardee
1	U.R. Mehra Life Time Achievement Award	2007-08	R. S. Dass
		2009-10	Kusumakar Sharma
2	Fellow of National Academy of Agricultural Sciences	2007	D. N. Kamra
		2009	A. K. Verma
3	Fellow of Animal Nutrition Association	2007-08	A. K. Garg A. K. Verma
		2009-10	R.S. Dass L.C. Chaudhary Putan Singh
4.	Fellow of NAVS	2007	A. K. Pattanaik
		2007	S. K. Saha
5	Recognition Award of NAAS	2007-08	D. N. Kamra
6	Hari Om Ashram Trust Award	2009-2010	K. Sharma, A.K. Pattanaik, N. Dutta
7	Barat Ratna Dr. C. Subramaniam Outstanding Teacher Award	2009-2010	D.N. Kamra

PUBLICATION

INTERNATIONAL JOURNALS

1. Agarwal, N., Chandra, S., Kumar, R., Chaudhary L.C. and Kamra, D.N. 2009. Effect of peppermint (*Mentha piperita*) oil on *in vitro* methanogenesis and fermentation of feed with buffalo rumen liquor. *Animal Feed Science & Technology*, 148: 321-327.
2. Agarwal, N., Kamra, D.N., Chatterjee, P.N., Kumar, R. and Chaudhary, L.C. 2008. Changes in microbial profile, methanogenesis and fermentation of green forages with buffalo rumen liquor as influenced by 2-bromoethanesulphonic acid. *Asian-Australasian Journal of Animal Science*, 21: 818-823.
3. Chaudhary, M., Garg, A.K., Mittal, G.K. and Mudgal, V. 2010. Effect of organic selenium supplementation on growth, Se uptake and nutrient utilization in guinea pigs. *Biological Trace Element Research*, 133: 217-226.
4. Dey, A., Dutta, N., Sharma, K. and Pattanaik, A.K. 2008. Effect of dietary inclusion of *Ficus infectoria* leaves as a protectant of proteins on the performance of lambs. *Small Ruminant Research*, 75: 105-114.
5. Dey, A., Narayan Dutta, Sharma, K. and Pattanaik, A. K. 2007. Effect of dietary supplementation of leaves as source of condensed tannins on the performance of lambs. *Livestock Research for Rural Development*, 19(12), <http://www.cipav.org.co/lrrd/lrrd19/12/cont1912.htm>.

6. Garg, A.K. Mudgal, V and Dass, R.S. 2008. Effect of organic zinc supplementation on growth, nutrient utilization and mineral profile in lambs. *Animal Feed Science & Technology*, 144: 82-96.
7. George, S.K., Dipu, M.T., Mehra, U.R., Verma, A.K. and Singh, P. 2007. Effect of levels of feed intake on plasma concentration and urinary excretion of purine derivatives in crossbred bulls. *Journal of Animal Feed Science*, 16: 26-36.
8. Ingale, S.L., Singh, P., Raina, O.K., Mehra, U.R., Verma, A.K., Gupta, S.C. and Mulik, S.V. 2008. Interferon-gamma and interleukin-4 expression during *Fasciola gigantica* primary infection in crossbred bovine calves as determined by real-time PCR. *Veterinary Parasitology*, 152: 158-161.
9. Ingale, S.L., Singh, P., Raina, O.K., Verma, A.K., Channappanavar, R., Mehra, U.R. 2010. Interleukin-2 and interleukin-10 gene expression in calves experimentally infected with *Fasciola gigantica*. *Livestock Science*, 131: 141-143.
10. Ingale, S.L., Singh, P., Raina, O.K., Verma, A.K., Channappanavar, R., Mehra, U.R. 2010. Interleukin-2 and interleukin-10 gene expression in calves experimentally infected with *Fasciola gigantica*. *Livestock Science*, 131: 141-143.
11. Kamra, D.N., Patra, A.K., Chatterjee, P.N., Kumar, R., Agarwal, N. and Chaudhary, L.C. 2008. Effect of plant extracts on methanogenesis and microbial profile of the rumen of buffalo: a brief overview. *Australasian Journal of Experimental Agriculture*, 48: 175-178.
12. Kore, K.B., Pattanaik, A.K., Das, A. and Sharma, K. 2009. Evaluation of alternate cereal sources in dog diets: effect on nutrient utilization and hindgut fermentation characteristics. *Journal of the Science of Food & Agriculture*, 89: 2174-2180.
13. Kumar, N, Garg, A.K, Dass, R.S., Mudgal, V, Chaturvedi, V.K and Varshney, V.P. 2008. Effect of different levels of selenium supplementation on growth rate, nutrient utilization, blood metabolic profile and immune response in lambs. *Biological Trace Element Research*, 126 (Suppl.1): S44-S56.
14. Kumar, N, Garg, A.K., Dass, R.S., Varshney, V.P. and Chaturvedi, V.K. 2009. Growth performance, blood metabolites, antioxidant status and immune response of lambs fed inorganic and organic selenium supplemented diets. *Animal Feed Science & Technology*, 153: 77-87.
15. Kumar, R., Kamra, D.N., Agarwal, N. and Chaudhary, L.C. 2007. *In vitro* methanogenesis and fermentation of feeds containing oil seed cakes with rumen liquor of buffalo. *Asian-Australasian Journal Animal Science*, 20: 1196-1200.
16. Lalu K, Bhar, R., and Das A. 2007. Effect of bromochloromethane supplementation and energy restriction on rumen fermentation and blood biochemical profile in Muzaffarnagari rams. *Veterinary World*, 5: 245-250.
17. Lohakare, J., Pattanaik, A.K. and Khan, S.A. 2010. Effect of long-term fluoride exposure on growth, nutrient utilization and fluoride kinetics of calves fed graded levels of dietary protein. *Biological Trace Element Research*, 138: 148-162.
18. Mandal, G.P., Dass, R.S. and Garg, A.K. 2008. Effect of zinc supplementation from inorganic and organic sources on serum enzyme, vitamin and hormone in crossbred (*Bos indicus* x *Bos taurus*) calves. *Journal of Animal Feed Science*, 17: 147-156.
19. Mandal, G.P., Dass, R.S., Isore, D.P., Garg, A.K and Ram, G.C. 2007. Effect of zinc supplementation on growth, nutrient utilization and immune response in male crossbred cattle (*Bos indicus* x *Bos taurus*) cattle. *Animal Feed Science & Technology*, 138: 1-12.
20. Mudgal, V., Garg, A.K. and Dass, R.S. 2007. Effect of dietary selenium and copper supplementation on growth and nutrient utilization in buffalo (*Bubalus bubalis*) calves. *Feed Technology*, 7: 79-88.

21. Mudgal, V., Garg, A.K., Dass, R.S. and Varshney, V.P. 2008. Effect of selenium and copper supplementation on blood metabolic profile in male buffalo (*Bubalus bubalis*) calves. *Biological Trace Element Research*, 121: 31-38.
22. Nagabhusana, V., Sharma, K., Pattanaik, A.K. and Narayan Dutta 2008. Effect of cobalt supplementation on performance of growing calves. *Veterinary World*, 1: 299-302.
23. Patra, A. K., Kamra, D. N., Bhar, R., Kumar, R. and Agarwal, N. 2011. Effect of *Terminalia chebula* and *Allium sativum* on in vivo methane emission by sheep. *Journal of Animal Physiology & Animal Nutrition*, 95: 187-191.
24. Patra, A.K., Kamra, D.N. and Agarwal, N. 2010 Effects of extracts of spices on rumen methanogenesis, enzyme activities and fermentation of feeds *in vitro*. *Journal of the Science of Food & Agriculture*, 90: 511-520.
25. Pattanaik, A.K., Khan, S. A. and Goswami, T. K. 2007. Influence of iodine on nutritional, metabolic and immunological response of goats fed *Leucaena leucocephala* leaf meal diet. *Journal of Agriculture Science*, Camb. 145: 395-405.
26. Paul, S.S., Kamra, D.N. and Sastry, V.R.B. 2010. Fermentative characteristics and fibrolytic activities of anaerobic gut fungi isolated from wild and domestic ruminants. *Archives of Animal Nutrition*, 6 pp, DOI: 10.1080/17450391003625037.
27. Rajeesh, M., Dass, R.S., Garg, A.K. and Chaturvedi, V.K. 2008. Effect of vitamin E supplementation on serum alpha tocopherol, retinol and immune status of buffalo (*Bubalus bubalis*) calves. *Journal of Feed & Animal Science*, 17: 19-29.
28. Ravichandiran, S., Sharma, K., Dutta, N., Pattanaik, A.K., Chauhan, J. S. and Agnihotri, A. 2008. Comparative assessment of soybean meal with high and low glucosinolate rapeseed-mustard cake as protein supplement on performance of growing crossbred calves. *Journal of The Science of Food & Agriculture*, 88: 832-838.
29. Sahoo, A., Garg, A.K., Arora, B.M. and Pathak, N.N. 2010. Intake and utilization of sorghum and maize green fodder in spotted deer under captivity. *Tropical Animal Health and Production*, 42 (7): 1405-1412.
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40. Vasani, P., Dutta, N., Mandal, A.B., Sharma, K. and Kadam, M.M. 2008. Comparative digestibility of amino acids of maize, sorghum, finger millet and pearl millet in cockerels and Japanese quails. *British Poultry Science*, 49: 176-180.
41. Vasani, P., Mandal, A.B., Narayan Dutta, Maiti, S.K. and Sharma, K. 2008. Digestibility of amino acids of maize, low tannin sorghum, pearl millet and finger millet in caecectomized roosters. *Asian-Australasian Journal of Animal Science*, 21: 701-706.
42. Vasani, P., Narayan Dutta, Mandal, A.B. and Sharma, K. 2008. Influence of caecectomy on the bioavailability of minerals from vegetable protein supplements in adult roosters. *Asian-Australasian Journal of Animal Science*, 21: 1178-1182.

INDIAN JOURNALS

1. Bhar R. and Garg, A.K. 2007. Effect of urea ammoniated and urea supplemented water soaked wheat straw in adult sheep. *Indian Veterinary Journal*, 84: 484-487.
2. Bhar R., Lalu K, Chaturvedi, V.B., Mendiratta, S.K. and Sharma, A.K. 2008. Effect of bromochloromethane on nutrient utilization and histopathology of vital organs in rams. *Indian Veterinary Journal*, 85: 285.
3. Bhar R., Lalu K, Chaturvedi, V.B., Mendiratta, S.K. and Sharma, A.K. 2008. Effect of bromochloromethane on nutrient utilization and histopathology of vital organs in rams. *Indian Veterinary Journal*, 85: 285-288.
4. Chaudhary, L.C., Agarwal, N., Sahoo, A., Kamra, D.N. and Pathak, N.N. 2007. Effect of microbial feed additives and replacement of cereal grain with wheat bran on the performance of male crossbred calves. *Indian Journal of Animal Science*, 77: 1338-1340.
5. Chaudhary, L.C., Kamra, D.N., Agarwal, N. and Kumar, R. 2007. Evaluation of *Moringa oliefera* leaves in sheep. *Indian Journal of Animal Nutrition*, 23: 196-198.
6. Chaudhary, L.C., Sahoo, A., Agarwal, N., Kamra, D.N. and Pathak, N.N. 2008. Effect of direct fed microbials on nutrient utilization, rumen fermentation, immune and growth response in crossbred cattle calves. *Indian Journal of Animal Science*, 78: 515-521.
7. Dass, R.S., Garg, A.K., Kumar Ripusudan and Varshney, V.P. 2009. Effect of zinc sulphate treated soybean meal feeding on nutrient utilization, nitrogen balance and metabolic profile in buffalo calves. *Indian Journal of Animal Science*, 79: 69-73

8. Dey, A., Dutta, N. and Sharma, K. 2009. Effect of *Ficus infectoria* leaves tannins on in vitro rumen fermentation. *Indian Veterinary Journal*, 86: 1156-58.
9. Dey, A., Dutta, N., Sharma, K. and Pattanaik, A.K. 2009. Response of cows to dietary supplementation of condensed tannins through *Ficus infectoria* leaves. *Indian Journal of Animal Science*, 79:56-60.
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11. Dipu, M.T., George, S.K., Singh, P., Mehra, U.R. and Verma, A.K. 2008. Effect of feed restriction on utilization of nutrients in Murrah buffaloes. *Indian Veterinary Journal*, 85: 617-619.
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15. Dutta, N., Sharma, K., Pattanaik, A.K. and Singh, M. 2009. Effect of strategic feeding of urea treated cereal straws supplemented with agricultural by products on the performance of growing buffalo calves and heifers. *Animal nutrition & Feed Technology* 9: 185-193.
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19. Ingale, S.L., Singh, P., Verma, A.K. and Mehra, U. R. 2010. Effect of *Fasciola gigantica* infection on nutrient utilization and cytokine gene expression during prepatent period in crossbred calves. *Animal Nutrition & Feed Technology*, 10: 177-185.
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23. Kumar, N., Garg, A.K. and Dass, R.S. 2009. Effect of dietary supplementation of inorganic and organic selenium on intake and utilization of nutrients in lambs. *Animal Nutrition & Feed Technology*, 9:253-260.
24. Kumar, R., Kamra D.N., Agarwal, N. and Chaudhary L. C. 2011. Effect of tree leaves containing plant secondary metabolites on *in vitro* methanogenesis and fermentation of feed with buffalo rumen liquor. *Animal Nutrition and Feed Technology*, 11: 103-114.
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41. Ramgaonkar, J.S., Verma, A.K., Singh, P. and Mehra, U.R. 2008. Effect of dietary protein levels on urinary excretion and plasma concentration of purine derivatives in crossbred bulls. *Animal nutrition & Feed Technology*, 8: 25-34.
42. Ramgaonkar, J.S., Verma, A.K., Singh, P. and Mehra, U.R. 2008. Effect of dietary protein levels on urinary excretion and plasma concentration of purine derivatives in crossbred bulls. *Animal Nutrition & Feed Technology*, 8: 25-34.
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47. Shakhar, C., Pattanaik, A.K., Kore, K.B. and Sharma, K. 2010. Appraisal of feeding practices and its effect on blood metabolic profile of pet dogs reared on homemade diets. *Animal nutrition & Feed Technology*, 10: 61-74.
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49. Sharma, K., Pattanaik, A.K., Anandan, S. and Blümmel, M. 2010. Food-feed crops research: a synthesis. *Animal nutrition & Feed Technology*, 10S: 1-10.
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Any other: Nil

FINANCIAL STATEMENT

EXPENDITURE UNDER CAFT DURING XI PLAN

Head	2007-08	2008-09	2009-10	2010-11	Upto Sept. 2011
Operating cost of Training	2,87,294	3,18,161	1,11,798	2,75,919	2,25,291
Recurring Contingency	183401	1,98,244	52,810	1,85,983	-
T.A.	30909	36,571	17,273	1507	3774
Library	43972	43,935	22,313	22,097	-
Non-Recurring Contingency	0	0	0	0	-
TOTAL	545576	596911	204194	485506	229065