

ANIMAL NUTRITION RESEARCH STATION

Animal nutrition Research Station

Faculty Information

Sr. No.	Designation	E-Mail	Phone No.	Joining Year	Qualification	Experience	Publication
1	Research Scientist & Head	pareshpandya@kamdhenuuni.edu.in	7600443854	1989	Ph. D.	32	18
2	Research Scientist	safi@kamdhenuuni.edu.in	9898316786	1995	Ph. D.	26	39
3	Assistant Research Scientist	shekhamakbul@kamdhenuuni.edu.in	9601277950	2006	Ph. D.	15	4
4	Assistant Research Scientist	brdevalia@kamdhenuuni.edu.in	9429070704	1995	Ph. D.	26	6
5	Assistant Research Scientist	sorathiyakk@kamdhenuuni.edu.in	9601507065	2016	M.V.Sc.	5	8

About the Department:

Animal Nutrition Research Station is the oldest department in Gujarat state carrying out research in animal nutrition. The department started in the year 1942 as the constituent of Munglal Goenka Institute of Animal Genetics and Nutrition, which formed a part of the Institute of Agriculture, Anand. The department made immense contribution to the science of animal nutrition by contributing research papers in referred journals as well as recommendation for farmers and scientific community. The major research areas of the center are: Animal Nutrition Survey in different districts of Gujarat state, fodder production and utilization, nutrient requirements of animals, utilization of agro-industrial byproducts and waste materials, development of complete feed system, studies on rumen microbes, development of feeding strategies for methane mitigation, studies on evolving area specific mineral mixtures and strategies for feeding of livestock during scarcity period.

Currently the department is engaged in research work on formulation and evaluation of crop residue based total mixed rations for various categories of livestock, development of area specific mineral mixtures to correct deficiencies and Bypass Nutrient Technology, estimation of methane production and to develop feeding strategies for mitigation of methane emission in ruminants and to develop the feeding strategies to minimize the effect of heat stress in animals.

Along with research this department is also involved in teaching and extension activities. This department is involved in undergraduate and post graduate teaching. Presently department offers one under-graduate course and twenty five post-graduate courses. So far 111 and 23 students have earned their M. V. Sc./M. Sc. and Ph.D. degrees respectively.

Research Area:

- Feeds and feeding practices in western India
- Nutritive evaluation of feeds and fodders
- Utilization of Agro-industrial byproducts and waste materials
- Incriminating factors in feeds and fodder
- Blood studies
- Formulation of of draft standards for different feeds for Bureau of Indian Standards(BIS)
- Bypass nutrient technology
- Complete feeds/Total mixed rations
- Studies on density, diversity, and dynamics of microbes in buffalo
- Area specific mineral mixture
- Methane mitigation

Ongoing Research Projects

Sr. No	Title	Agency	Period	Budget Outlay (Rs. Lakh)	PI/Co-PI
1	Animal Nutrition Research Station (B.H. 5029)	Government of Gujarat	1972 to till date	-	PI: Dr. P. R. Pandya
2	Centre of Excellence for Animal Nutrition (B.H. 12971)	Government of Gujarat	2008 to till tdate	-	PI: Dr. P. R. Pandya
3	Outreach project on estimation of methane emission under different feeding systems and development of mitigation strategies (B.H. 2029).	ICAR GOI, New Delhi	19-1-2009 to till date	71.80	PI: Dr. P. R. Pandya Co-PI Dr. B. R. Devalia Dr. M. A. Shekh
4	Effect of Phytochemicals on Nutrient Utilization, Health Attributes and Production of Ruminants (B.H. 12993-06)	Government of Gujarat	6-7-2012 to till date	-	PI: Dr. P. R. Pandya Co-PI Dr. M. A. Shekh Dr. B. R. Devalia
5	Strengthening of Research and Animal Feed Testing Laboratory (B.H. 12993-23)	Government of Gujarat	4-8-2016 to till date	254.24	PI: Dr. P. R. Pandya

6	Development of direct fed microbes using vegetable market waste for dairy animals to enhance health and productivity	GUJCOST, DST, Government of Gujarat	1-4-2021 to 31-3-2024	6.31	PI: Dr. P. R. Pandya Co-PI Dr. B. R. Devalia Dr.M. A. Shekh
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Research Projects Completed:

Sr. No	Title	Agency	Period	Budget (Rs. Lakh)	PI/Co-PI
1	AICRP on improvement of feed resources and nutrient utilization in raising animal production. (B.H. 2028)	ICAR	007-2013	87.90	PI: Dr. S. Parnerkar Co-PI: Dr. R. S.Gupta Dr.P. R. Pandya Dr. M. A. Shekh
2	National Agricultural Research Project-Phase-II Animal Nutrition. (B.H. 9091-4)	World Bank GOI, New Delhi and Government of Gujarat	19-9-1989 to 2012	-	PI: Dr. S. Parnerkar
3	Enhancing feed efficiency through use of enzyme and altering rumen fermentation in bovines and poultry (B.H. 10955).	Government of Gujarat	2005-2014	46.46	PI: Dr. R. S. Gupta Dr.P. R. Pandya Co-PI: Dr. G. R. Patel Dr.D.C.Patel Dr. B. R. Devalia
4	Study on Density, Diversity and Dynamics of rumen microbes (B.H. 18316).	DBT, GOI, New Delhi	29-11-2006 to 29-11-2009	40.68	PI: Dr. P. R. Pandya Co-PI: Dr. S. Parnerkar
5	Detoxification and utilization of key Agro-forest based non-conventional oil cakes in the feeding of Livestock (B.H. 18346).	DBT, GOI, New Delhi	13-2-2008 to 12-2-2013	52.83	PI: Dr. S. Parnerkar
6	Solar/ wind powered portable green house for growing fodder for sustainable dairy development (B.H. 18361-01).	World bank	June, 2011 to May, 2013	16.50	PI: Dr. S. Parnerkar Co-PI: Dr. M. A. Shekh Dr. B. R. Devalia Dr. G. R. Patel Dr. P. R. Pandya Dr. R. S. Gupta Dr. D. C. Patel

7	Studies on Supplementing Shuddhi (Aflatoxin binder) on milk yield, gross milk composition and Aflatoxin M ₁ level in milk of Dairy Animals (B.H. 18457-23).	Other Agency	August 2015 to January 2016	2.30	PI: Dr. S. Parnerkar Co-PI Dr.M.A.Shekh Dr.B.R.Devalia Dr.D.C.Patel
8	The study on Evaluating the impact of Ration Balancing on Methane emissions in Dairy Animals (B.H. 18457-26)	NDDB	August, 2015 to September, 2016	54.15	PI: Dr. S. Parnerkar Co-PI Dr. R.S.Gupta Dr. P.R.Pandya Dr.D.C.Patel Dr.M.A.Shekh Dr.B.R.Devalia
9	Feasibility of using Dry Vinasse (Commercial Yeast Molasses) in cattle ration (B.H. 18457-67)	Other Agency	September, 2016 to May,2017	4.29	PI: Dr.D.C.Patel Co-PI Dr.M.A.Shekh Dr.B.R.Devalia
10	Bio-prospecting of crop residues by Solid State Fermentation to enhance nutrient utilization and feed efficiency in ruminants. (B.H. 18503-01)	DBT	27-3-2015 to 2018	83.86	PI: Dr. P. R. Pandya Co-PI Dr. R. S. Gupta Dr. B. R. Devalia Dr. M. A. Shekh
11	Estimation of Methane Emission in Cattle and Dietary Interventions for its Mitigation. (B.H. 18457-77)	GEDA Government of Gujarat	3-11-2016 to 31-3-2021	96.95	PI: Dr. P. R. Pandya Co-PI Dr. B. R. Devalia Dr. M. A. Shekh

Achievements:

- Total 250 recommendations for farmers and scientist have been made so far.
- Animal nutrition surveys have been carried out in all the districts of Gujarat state. The feeding practices of farmers where studied and recommendations have been made for corrective measures to increase productivity and profit of farmers.
- Huge data bank has been created on nutrient composition of almost all the feeds and fodder fed to animals. The same is being used by the farmers, scientists and industrialist as reference.
- Nutritive value of several feeds, fodder has been determined by conducting metabolism trials. Nutritive values of about more than 80 feed ingredients have been determined.

- The department has been screened various new cattle feed sources including non conventional feeds for the nutritive value and suitable levels may be incorporated in compound concentrate mixture for daily animals. The same are being used by different cattle feed factories.
- The feeding practices for animals during scarcity have been developed and recommended.
- Developed complete feed blocks for animals prepared using different types of crop residues by adding molasses, urea and mineral mixture.
- The incriminating factors present in feeds and fodder were determine and ways and means for reduction of these factors by economic practicable methods have been suggested.
- Formulations of Total Mixed Rations have been evolved using a variety of crop residues, agro-industrial by products and non conventional feeds for supporting maintenance, growth and lactation of dairy animals in order to economize cost of feeding thereby higher returns to dairy farmers.
- Studied rumen microbes by various biotechnological tools and submitted the gene sequences for rumen bacteria and protozoa of Surti buffalo in the international gene bank.
- Area specific mineral mixture has been developed and is sold to farmers as ANUBHAV chelated mineral mixture.
- Feeding strategies developed to reduce 10 to 15% methane production in cattle by various farmer friendly dietary interventions with increase in growth and production.
- Developed Solid State fermentation biomass technology to enhance feed efficiency and productivity of ruminants.

Awards and achievements, recognition

Sr. No.	Name of person	Awards	Year
1	Dr. P. C. Shukla	The Compound Livestock Feeds Manufacturers Association of India	1980
2	Dr. M. B. Pande	The Compound Livestock Feeds Manufacturers Association of India	1983
3	Dr. M. B. Pande , Dr. P.C. Shukla and Dr. J. R. Vyas	Dr. J. G. Kane memorial award	1983
4	Dr. R. S. Gupta	The Compound Livestock Feeds Manufacturers Association of India	1990
5	Dr. Subhash Parnerkar	Dr. S. K. Ranjhan Award for Best Doctoral Thesis	1991-93
6	Dr. Subhash Parnerkar Dr. P. R. Pandya	Prof. J.P. Trivedi Award sponsored by Hari Om Ashram	1996
7	Dr. P. R. Pandya	CSIR Senior Research fellowship award	1996

8	Dr. Subhash Parnerkar, Dr. P.R. Pandya	Sardar Patel Agricultural Research Award from Govt. of Gujarat.	1998-99
9	Dr. P. R. Pandya	Best paper award by Godarshan	1999
10	Dr. P. R. Pandya and Dr. M. C. Desai	Prof. J.P. Trivedi Award sponsored by Hari Om Ashram	2000
11	Dr. Dharmendrakumar, Dr. Subhash Parnerkar, Dr. M. A. Shekh and Mr. G. R. Patel	Best poster Presentation Award by The Indian Society of Sheep and Goat production and utilization	2012
12	Dr. Subhash Parnerkar Dr. M.A.Shekh	Prof. J.P. Trivedi Award sponsored by Hari Om Ashram	2016
13	Dr.Subhash Parnerkar Dr. R.S.Gupta	Best oral paper presentation award in National seminar on Biotechnological approaches in management of health and reproductive disorder in livestock for sustainable production	2016
14	Dr. S. G. Vahora	Best oral paper presentation Award in National seminar by Indian Society of Animal Production and Management at Mannuthy, Thrissur	2019
15	Dr. S. G. Vahora, M. A. Shekh and P.R.Pandya	3 rd Best paper Award by Krushigovidya, AAU, Anand	2019
16	Dr. S. G. Vahora	1 st Best paper Award by Krushigovidya, AAU, Anand	2019
17	Dr. S. G. Vahora	Best oral paper presentation Award in seminar held by National Agricultural Higher Education Project, ICAR, New Delhi	2019
18	Dr. K. K. Sorathiya, Dr. B. R. Devalia and Dr. P. R. Pandya	Best Oral Paper Presentation Award in International conference organized by Animal Nutrition Society of India (INCAN-2019) at Kolkata.	2019

19	Dr. P. R. Pandya	Best Oral Paper Presentation Award in National conference organized by Indian Society of Animal Production and Management (ISAPM-2020) at Jaipur	2020
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List of Research Publications:

1. Pandya, P. R., Patel, G. R., Gupta, R. S., Patel, D. C., Pande, M. B., & Desai, M. C. (2005). Effect of wheat straw based total mixed ration with *Prosopis juliflora* pods on performance of lactating cows. *International Journal. Cow Science*, **1**(1), 66-72.
2. Vahora, S. G., Gupta, R. S., Pandya, P. R., Patel, D. C., Patel, G. R., & Pande, M.B. (2005). Exogenous enzyme supplementation and lactation performance of dairy cows. *International Journal of Cow Science*, **1**(2): 33-42.
3. Pandya, P. R., Singh, K.M., Parnerkar, S., Tripathi, A. K., Mehta, H. H., Rank D. N., Kothari, R. K., and Joshi, C. G.(2010).Bacterial diversity in the rumen of Indian surati buffalo (*Bubalus bubalis*) assessed by 16 S rDNA analysis. *Journal of Applied Genetics*, **51**(3):395-402.
4. Hossain, S. A., Parnerkar, S., Haque, N. Gupta, R. S., Kumar D., & Tyagi, A. K. (2012). Influence of dietary supplementation of live yeast (*Saccharomyces cerevisiae*) on nutrient utilization, ruminal and biochemical profiles of Kankrej calves. *International Journal of Applied Animal Science*, **1** (01):30-38.
5. Singh, K. M., Pandya, P. R., Tripathi A. K., Patel, G. R., Parnerkar, S., Kothari, R. K., & Joshi, C. G. (2014). Study of rumen metagenome community using qPCR under different diets. *Meta Gene*, **2**: 191–199.
6. Patel, D. D, Patel, A. K., Parmar, N, R., Shah, T. M., Patel, J. B., Pandya P. R., & Joshi, C. G. (2014). Microbial and carbohydrate active enzyme profile of buffalo rumen metagenome and their alteration in response to variation in the diet. *Gene*, **545**:88-94
7. Kumar, D. & Parnerkar, S. (2016). Effect of feeding detoxified neem (*Azadirachta indica*) cakes on chevon characteristics of goats. *The Bioscan*, **11**(1): 037-040
8. Sherasia, P. L., Pandya, P. R., Parnerkar, S., Devalia B. R. & Bhanderi, B. M. (2016). Evaluation of Feeding Practices and Certain Minerals Status of Lactating Buffaloes in Coastal Zone of Western India. *Buffalo Bulletin*, **35**(3):467-477.
9. Shekh, M. A., Parnerkar, S., Islam, M. M. & Wadhvani, K. N. (2016). Feedlot Performance of Weaner Lambs on Conventional and Non Conventional Total Mixed Ration. *International Journal of Science, Environment & Technology*, **5**(5):3362-3368.

10. Patel, U. G., Oza, R. S.; Pandya, P. R.; Devalia, B. R. Patel, D. C. & Parnerkar, S. (2017). Effect of solid state fermentation (SSF) biomass supplementation on digestibility, nutrient utilization and rumen fermentation pattern in sheep. *International Journal of Agricultural Science & Research*, **7**(1):107-114.
11. Vahora, S. G. & Pande, M. B. (2006) Effect of enzyme supplementation on feed utilization, blood constituents and reproduction in dairy cows. *Indian Journal of Animal Sciences*, **76**(6): 471-475.
12. Sharma, H. C., Dharni, A. J., Devalia, B. R. & Kavani, F. S. (2007). Minerals status at fertile and infertile oestrus in Surati buffaloes under field conditions. *Journal of Animal Nutrition*, **24** (3):199-201.
13. Kshatriya, P. S., Shah, S. V., Pandya, P. R., Dharni, A. J., Trivedi, M. M., Patel, D. M., Patel, A. M. & Parnerkar, S. (2009). Digestibility of organic nutrients and blood biochemical profile in crossbred calves fed non-conventional concentrate mixture. *Indian Journal of Animal Production & Management*, **25**(3-4): 116-120.
14. Bhandari, B. M., Parnerkar Subhash, Patel, D. C. and Shekh, M. A. (2010). Assessment of Nutritional status of Dairy cows in Jamnagar district. *Indian Journal of Dairy Science*, **63**(3), 209-215.
15. Bhandari, B. M., Parnerkar, S., Patel, D. C. and Shekh, M. A. (2010). Assessment of Nutritional status of Dairy cows in Jamnagar district. *Indian Journal of Dairy Science*, **63**(3), 209-215.
16. Bhandari, B. M., Parnerkar S., Patel, D.C., Pandya, P.R. and Sherasiya, P.L. (2010). Evaluation of feeding practices and certain minerals status of buffaloes in semi arid zone of Gujarat. *Indian Journal of Animal Research*, (43):1-30.
17. Arewad, G.R., Thube, H.A., Pandya, P.R., Parnerkar S. and Sankhapal, S. (2011). Effect of feeding bypass protein based total mixed ration on performance of growing crossbred cows. *Indian Journal of Animal Nutrition*, 28(3):303-308.
18. Patel, V.R. Gupta, R. S. and Jani, V. R. (2012). Effect of feeding bypass protein on growth, body measurement and nutrient utilization in growing buffalo heifers: A field trial, *Indian Journal of Animal Nutrition*, 29(2):152-156
19. Sherasiya, P. L. Pandya, P.R. Parnerkar, S. Patel, D. C. and Bhandari, B.M. (2014) Assessment of feeding practices and status of certain minerals of lactating cows in Porbandar district of Gujarat state, *Indian Journal of Dairy Science*, 67(3):223-229
20. Bhandari, B.M., Parnerkar, S., Aggarwal, A., Dharmendrakumar and Pathan, S. (2016). Effect of supplementating two different commercial strains of yeast cultures on milk production, milk composition and feed conversion efficiency in crossbred cows in India. *International Journal of Livestock Research*, 4(1):29-35.
21. Sankhapal, S., Parnerkar, S. and Bhandari, B.M. (2016). The effect of feeding bypass fat and yeast (*Saccharomyces cerevisiae*) supplemented total mixed ration on feed intake, digestibility, growth performance and feed conversion efficiency in weaner surti kids, *International Journal of Livestock Research*, 4(1):11-17.
22. Desai, V.R., Padheriya, Y.D. and Parnerkar, S. (2016). Effect of feeding bypass fat on milk production and economics of feeding from buffaloes of tribal areas in Panchmahal and Vadodara, *Indian Veterinary Journal*, **93**(03): 66-68.

23. Hadiya, K. K., Derasari, H. J. Devalia, B. R. and Jani, R. G. (2010). Effect of supplementation of minerals and enzymes on service period and postpartum plasma minerals profile in crossbred cows, *Veterinary World*. 3(4):173-176
24. Sherasia, P. L., Pandya, P. R., Parnerkar, S., Murty, S. and Devalia B. R. (2017). Influence of incorporating different levels of solid state fermented biomass in total mixed rations on *in vitro* digestibility and methane production, *Indian Journal of Animal Nutrition*, 34 (2):145-149.
25. Lunagariya, P. M., Shah, S.V., Devalia, B. R., Patel, A. C. and Pandya, P. R.(2018). An *in vitro* dose optimization of exogenous fibrolytic enzymes in total mixed ration for crossbred cows, *International Journal of Current Microbiology & Applied Sciences*, 7(10): 330-338.
26. Lunagariya, P. M., Shah, S. V., Patel, A. C., Shekh, M. A. and Pandya, P. R. (2017). Effect of exogenous fibrolytic enzymes on milk and components yield as well as on feed efficiency and body weight in holstein friesian x kankrej crossbred cows after peak lactation, *Trends in Bioscience*, 10(43),8947-8951.
27. Shekh, M. A., Parnerkar, Subhash, Lunagariya, P. M. and Parmar, D. J. (2018). Nutrients intake and nutrients digestibility of weaner lambs as affected by incorporation of non-conventional ingredients in total mixed ration, *International Journal of Agriculture Sciences*, 10(10), 6047-6049.
28. Vahora, S.G., Kore, K.B. and Parnerkar, S. (2012). Feeding of formaldehyde-treated protein meals to lactating buffaloes; effect on milk yield and composition, *Livestock Research for Rural Development*, 24(1) 2.
29. Vahora, S.G., Parnerkar, S. and Kore, K.B. (2012). Effect of feeding bypass nutrients to growing buffalo heifers under field conditions, *Livestock Research for Rural Development*, 24(02): 24.
30. Vahora, S.G., Parnerkar, S. and Kore, K.B. (2013). Productive efficiency of lactating buffaloes fed bypass fat under field condition: Effect on milk yield, milk Composition, body weight and economics, *Iranian Journal of Applied Animal Science*. 3(1) 53-58.
31. Vahora, S.G. and Parnerkar, S. (2013). Effect of feeding bypass nutrients on milk production and composition in buffaloes under field condition. *Indian journal of Animal Nutrition*. 30(1).
32. Patel, R.M., Garg, D.D., Patel, V.R., Vahora, S.G., Katariya, M.A. and Choubey, M. (2014). Effect of dietary supplementation of garlic (*Allium sativum*) and fenugreek (*Trigonella foenum-graecu* L.) seed powder on growth performance and blood biochemical parameters in broilers, *Indian journal of Poultry Science*. 49(1) 17-20.
33. Patel, V.R., Choubey, M., Garg, D.D. and Vahora, S.G. (2014). Comparative *In vitro* evaluation of three strains of rice straw for ruminant feeding. *Indian Veterinary Journal*. 91(10) 84-85.
34. Sorathiya, K.K., Choubey, M., Patel, V.R., Vahora, S.G., Garg, D.D., Jadhav, M.D. and Tabhani, P.M. (2015). Effect of feeding formaldehyde treated protein on nutrient

- utilization and economics in Surti buffalo heifers, *Indian journal of Animal Sciences*, 85(12). 113-115.
35. Thorat, G.N. and Vahora, S.G. (2015). Constrains experienced by poultry owners in adoption of poultry farming in Anand district of Gujarat, *Research Journal of Animal Husbandry and Dairy Science*, 6(2) 105-108.
 36. Thorat, G.N., Vahora, S.G. and Ramjiyani, D.B. (2015). A test to measure knowledge about poultry management practices, *Gujarat Journal of Extension Education*. 26(1) 4-6.
 37. Ramjiyani, D.B., Patel, S.R. and Vahora, S.G. (2015). Constraints faced by rural youth in adopting agriculture as an occupation, *Gujarat journal of Extension Education*, 26(1) 33-35.
 38. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2015). Adoption of no cost and low cost animal husbandry practices by dairy farmers, *Gujarat journal of Extension Education*, 26(1) 77-81.
 39. Thorat, G.N., Vahora, S.G. and Ramjiyani, D.B. (2012). Correlates of knowledge of poultry entrepreneurs about poultry management practices, *Gujarat journal of Extension Education*, 26(1) 127-131.
 40. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2015). Personal and socio-economic characteristics of livestock keepers in Dahod district, *Gujarat Journal Of Extension Education*, 26(2) 195-198.
 41. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2015). Training needs perceived by dairy farmers regarding dairy and animal husbandry practices. *Gujarat journal of Extension Education*. 26(2) 244-250.
 42. Thorat, G.N., Vahora, S.G. and Ramjiyani, D.B. (2016). Knowledge and adoption of poultry owners about poultry management practices. *Gujarat journal of Extension Education*. 27(1).
 43. Ramjiyani, D.B., Patel, S.R., Thorat, G.N. and Vahora, S.G. (2016). Influence of personal and socio-economic characteristics of rural youth on attitude towards agriculture as an occupation, *Gujarat Journal of Extension Education*, 27(1).
 44. Thorat, G.N., Vahora, S.G. and Trivedi, M.M. (2016). Management efficiency of poultry owners, *Gujarat journal of Extension Education*, 27(1).
 45. Thorat, G.N., Vahora, S.G. and Ramjiyani, D.B. (2016). Communication behaviour of tribal dairy women in animal husbandry, *Gujarat Journal of Extension Education*, 27(1).
 46. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2016). Involvement of tribal dairy women in health care management practices of animal husbandry, *Gujarat Journal of Extension Education*. 27(1).
 47. Thorat, G.N., Vahora, S.G. and Trivedi, M.M. (2016). Development of scale to measure attitude of poultry farmers towards poultry management practices, *Gujarat*

Journal of Extension Education. 27(1).

48. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2016). Participation of tribal dairy women special reference to feeding and breeding practices in animal husbandry and dairy, *Gujarat Journal of Extension Education*, 27(1).
49. G.J. Patel, S.G. Vahora and G.N. Thorat (2016). Training needs of tribal farm women in soybean production technology. *Gujarat journal of Extension Education*. 27(1)
50. Vahora, S.G., Thorat, G.N. and Ramjiyani, D.B. (2016). Economic status and participation of dairy women in animal husbandry, *Gujarat Journal of Extension Education*, 27(2)
51. Patel, G.J., Vahora, S.G. and Thorat, G.N. (2016). Training needs of tribal farm women in maize production technology, *Gujarat Journal of Extension Education*., 27(2).
52. Thorat, G.N., Vahora, S.G. and Ramjiyani, D.B. (2016). Participation of tribal dairy women in animal husbandry, *Gujarat Journal of Extension Education*, 27(2).
53. Thorat, G.N., Vahora, S.G. and Patel, D. C. (2017). Adoption of health care management practices adopted by tribal farmers in goat farming, *Gujarat journal of Extension Education*, 28(1) 114-116.
54. Vahora, S.G., Thorat, G.N. and Patel, D. C. (2017). General management practices adopted by tribal farmers in goat farming, *Gujarat Journal of Extension Education*, 28(2) 336-339.
55. Patel, R.M., Garg, D.D., Patel, V.R., Vahora, S.G., Raval A.P. and Choubey, M. (2017). Effect of dietary supplementation of garlic (*Allium sativum*) and fenugreek (*Trigonella foenum-graecum* L.) seed powder on growth performance, carcass characteristics and economics of feeding in broilers, *Journal of Animal Research*, 7(2) 313-318.
56. Thorat, G. N., Vahora, S. G., Trivedi, M. M. and Bhoi, G. (2017). Timely adoption of poultry production technology by poultry entrepreneurs, *Multilogic in Science*, 7(23) 218-219.
57. Patel, D. C., Thorat, G. N. and Vahora, S. G. (2018). Feeding practices adopted by goat keepers in goat farming, *Gujarat Journal of Extension Education*, 29(1) 33-35.
58. Vahora, S. G., Thorat, G. N. and Patel, D. C. (2018). Adoption of breeding management practices by goat keepers, *Gujarat Journal of Extension Education*, 29(1) 104-106.
59. Thorat, G. N., Patel, D. C. and Vahora, S. G. (2018). Knowledge of dairy farmers regarding breeding practices in dairy farming, *Gujarat Journal of Extension Education*, 29(1) 109-111.
60. Jadhav, M.D., Choubey, M., Patel, V.R., Vahora, S.G., Sorathiya, K.K. and Tabhani, P.M. (2018). Effect of graded level of bypass protein on metabolites of rumen fermentation in surti buffalo heifers, *The Indian Veterinary Journal*, 95(2) 29-31.

61. Jadhav, M.D., Choubey, M., Sorathiya, K.K., Patel, V.R. and Vahora, S.G. (2018). Effect of formaldehyde treated protein on blood hematology in Surti buffalo heifers, *Journal of Pharmacognosy and Phytochemistry*, 7(4) 3404-3406.
62. Jadhav, M.D., Choubey, M., Sorathiya, K.K., Patel, V.R. and Vahora, S.G. (2018). Effect of bypass protein on reproductive performance of Surti buffalo heifers, *International Journal of Chemical Studies*, 6(4) 2423-2424.
63. Sorathiya, K. K., Choubey, M., Patel, V. R., Vahora, S. G., Garg, D. D., Jadhav, M. D., &Tabhani, P. M. (2015). Effect of feeding formaldehyde treated protein on nutrient utilization and economics in Surti buffalo heifers. *Indian Journal of Animal Sciences*, 85(12), 65-00.
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Books (in vernacular language):

1. *Pashu poshan ane aahaar vyavastha*
2. *Pashu aahaar ane tenu vyavasthaapan*

Leaflets (in vernacular language):

1. *Baval bij ni chuni no dhoro na khorak mna upyog*
2. *Dhoro na khorak ma kuvadiya (puvad) no upyog*
3. *Subabul no dhoro na khorak ma upyog*
4. *Keri ni gotali no dhoro na khorak ma upyog*
5. *Juda juda varg na pushuo no dainik ahar*
6. *Ganda baval ni shingo-ek sasto pashu ahar*
7. *Sheradi ane sheradi ni adpedashono pashuahar tarike Upyog*

Folders (in vernacular language):

1. *Pashuo no dainik aahaar*
2. *Pashu aahaar*
3. *Pashu aahaar maa khaniij tatvo nu mahatva*
4. Doodhal pashuonee uptaadaktaa vadharavaa bypass protein no upayog
5. Doodhal pashuonee uptaadaktaa vadharavaa bypass fat no upayog
6. *Pashu aahaar ma khaniij tatvo nu mahatva*

Photo Gallery:

Nil

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