

As per the information sought under RTI application vide No. Agri. Edu. 6-36/2015-A&P dated 31st July, 2015, regarding list of publications and patents filed by the institute (National Research Centre on Mithun, Jharnapani, Nagaland) during last three years, the details are given as under:

1. Total number of research publications during last three years (2012-13, 2013-14 and 2014-15) is : **92 (list enclosed)**
2. Total number of patents filed by the institute during last three years: **08 (list enclosed)**
3. Total No. of research publications published by NRC on Mithun in which RA and SRF (who are having post graduation and 3 years Bachelors degree) were contributed as authors in the last three years: **03**
4. Total number of research publications published in NRC on Mithun in which RA and SRF (who are having post-graduation and 4 years Bachelors degree) were contributed as authors in the last 3 years: **11**
5. Total No. of patents filed by NRC on Mithun in which RA and SRF (who are having post graduation and 3 years Bachelors' degree) were contributed as authors in the last three years: **NIL**
6. Total number of patents filed by NRC on Mithun in which RA and SRF (who are having post-graduation and 4 years Bachelors degree) were contributed as authors in the last 3 years: **NIL**

Papers in research journal (National & International)

1. Das, K. C., Baruah, K. K., Haque, N., Sharma, R and Rajkhowa, C. (2012). Effect of different dietary protein levels on growth, nutrient utilization and rumen fermentation in Mithun (*Bos frontalis*) fed on rice straw based diet. *Animal Nutrition and feed technology*, 12:305-313.
2. Singh, B. R., Singh, V., Singh, R. K., Toppo Saroj, Haque, N. and Ebibeni, N. (2012). Comparative evaluation of effects of *Artemisia vulgaris* essential oils extracted from fresh and dried herb. *Medicinal Plants*, 4:302-309.
3. K. K. Baruah, A. Dhali, A. Mech, B. Bora, J. Das, R. Bora, M. Mondol, B. C. Sarmah, B. C. Deka and C. Rajkhowa. 2012. Effect of concentration and addition method of glycerol on the quality of cryopreserved mithun (*Bos frontalis*) spermatozoa. *Journal of Animal Nutrition*. DOI: 10.1111/jpn1 2012.
4. H. Konch, A. Dutta, K. K. Baruah and S. Sinha (2012) Synchronization of oestrus in cystic Hampshire gilts following administration of PGF_{2α}. *Indian Vet. J.* 89(5): 47-48.
5. Champak Barman, Anubha Baruah, B. K, Sarmah, K. K. Baruah, B. C. Sarmah, A. Dutta, P. Chakravorty and B. C. Deka (2012). Occurrence of subsequent natural oestrus in Mithun cows following superovulatory treatment. *Indian Vet. J.* 89(5): 49-51.
6. D, Baishya. K. K. Baruah, A. Dutta, Anubha Baruah and B. C. Sarmah (2012). The effect of boar contact on reproductive performance in Hampshire gilts. *Indian Vet. J.* 89(5):52-54.
7. Champak Barman, Anubha Baruah, B. K, Sarmah, K. K. Baruah, B. C. Sarmah, B. C. Deka, A. Dutta, P. Chakravorty, M. H. Khan, Suresh Kumar and P. K. Bharati (2012). effect of superovulatory treatment on serum estradiol-17β and progesterone concentration and its correlation with embryo recovery in mithun cows. *Indian J. Anim . Sci.* 82(11): 1327-1330.
8. D, Baishya. K. K. Baruah, A. Dutta, Anubha Baruah and B. C. Sarmah (2013) Serum oestrogen profile in prepubertal Hampshire gilt following boar contact and hormone treatment. *Indian Vet. J.* 90(1):63-65.
9. Champak Barman, Anubha Baruah, B. K, Sarmah, K. K. Baruah, B. C. Sarmah, B. C. Deka, A. Dutta, P. Chakravorty, M. H. Khan and P. K. Bharati (2013) Superovulatory treatment response and embryo recovery in Mithun cows. *Indian J. Anim . Sci.* 83(3) 272-275.
10. Chamuah, J, K., Singh, V., Dutta, P. R., Khate, K., Mech, A. and Rajkhowa, C. (2012) Tick infestation in Mithun. *Indian Veterinary Journal.* 89(7):140.
11. Dutta, P. R., Borkotoky, D., Singh, R K. and Chamuah, J. K. (2012) Managerial evaluation of backyard rabbit farming in Phek District of Nagaland. *Indian Veterinary Journal* 89(9):86-87.

12. P Perumal, J K Chamuah, V Singh, Kezhavituo Vupro and C Rajkhowa (2013). Blood profile of Mithun under different physiological stages. Indian Journal of Animal Sciences 83(3):279-280.
13. Chamuah, J, K., Singh, V., Dutta, P. R., Khate, K., Mech, A., Rajkhowa, C. and Borkotoky, D (2013). Incidence of gastrointestinal helminthes parasite in free ranging mithun (*Bos frontali*) from Phek District of Nagaland. Indian Veterinary Journal. 90 (3):127-128.
14. P Perumal, J K Chamuah, V Singh, Kezhavituo Vupro and C Rajkhowa (2013). Biometry of reproductive system of mithun and Tho Tho cow. Indian Journal of Animal Science 83(3):270-271.
15. O.K. Raina, Siju Susan Jacob, M, Sankar, D. Bhattacharya, S. Bandyopadyay, Anju Varghese, Jayanata Kumar Chamuah and H. Lalrinkima (2013). Genetic characterization of *Fasciola gigantic* from difernt geographical region of India by ribosomal DSNA markers. J Parasit Dis DOI 10.1007/s 12639-013-0276-7.
16. P.Perumal, Jayanata Kumar Chamuah, B Krishnappa, Kezhavituo Vupru and Kobu Khate (2012). Retention of pllacanta in mithun crossbred cow (Phre)- A case report. doi : 10.5455/vetworld.2013.171.
17. J. K. Chamuah, P. Perumal, K.K. Baruah and D. Borkotoky. (2013) Trichobezoars in mithun calves. Indian Veterinary Journal. 90(4).
18. Singh, B. R., Singh, V., Singh, R. K., Toppo Saroj, Haque N. and Ebibeni, N. (2012). Antimicrobial activity on common pathogens in essential oil of aerial parts of *Selinium wallichianim*. Natural Product An Indian Journal., 8(6): 233-237.
19. Singh, B. R., Singh, R. K., Singh, V. (2012). Replacement of Normal Maize with Quality Protein Maize in Concentrate Mixture has no Effect on Antibody Response against *Salmonella Enterica Ssp. Enterica Ser Typhimurium* in mithun-*Bos Frontalis*. Noto-are 15366359: Medicine. 2012-08-06.
20. Singh, B. R., Singh, V., Singh, R. (2012). Multiple Drug Resistant Enterobecter Agglomerans And *Pseudomonas Aeruginosa* Causing Conjunctivitis In Swamp Buffaloes In Nagaland. Noto-are 16852341: Medicine. 2012-08-06.
21. Singh, B. R., Singh, V., Singh, R. (2012). Isolation of Multiple Drug Resistant Enterobecter Agglomerans and *Pseudomonas Aeruginosa* from Swamp Buffaloes with Conjunctivitis In Nagaland. Noto-are 14612376: Medicine. 2012-07-23

2013-14

1. Mukharjee Anupama, Mukherjee Sabyasachi, Sahoo Nihar Ranjan, Longkumer S, Mech Moonmoon and Rajkhowa Chandan. 2013. Characterization of leptin gene and analysis of genetic polymorphism in mithun. Indian Journal of Animal Science 83(8):851-853.

2. Mukharjee Anupama, Mukherjee Sabyasachi, Longkumer S, and Rajkhowa Chandan. 2013. Genetic parameters of growth and reproductive traits in mithun (*Bos frontalis*). *Indian Veterinary Journal* 90 (8): 34- 36.
3. Sahoo N. R, Naskar Soumen, Tamuli MK, Mukherjee Anupama, Mukherjee Sabyasachi, and Longkumer I. 2013. Chromosomal profile of ghungroo breed of pig. *Indian Veterinary Journal* 90 (9): 77-79.
4. J.K.Chamuah, P. Perumal, K.K. Baruah and D. Borkakoty (2013). Trichobezoars in Mithun Calves. *Indian Vet. J.* 90(4): 98.
5. Champak Barman, Anubha Baruah, B. K. Sarmah, K. K. Baruah, B. C. Sarmah, P. Chakravorty, A. Dutta, B. C. Deka and P. Thakuria (2013). Serum Mineral Concentrations in Superovulated Mithun Cows. *Indian Vet. J.* 90(5): 80-82.
6. Champak Barman, Anubha Baruah, B. K. Sarmah, K. K. Baruah, B. C. Sarmah, P. Chakravorty, A. Dutta, B. C. Deka, M. Mondal, C. Rajkhowa and P. Thakuria (2013). Serum Protein, Glucose and cholesterol Concentrations in Superovulated Mithun Cows. *Indian Vet. J.* 90(6): 140-141.
7. Mohan Mondal, K. K. Baruah and C. Rajkhowa (2014): An animal of indian Pride. *Livestock research for Rural Development* 26(1): 1-9 [http:// www. Lrrd.org/Irrd26/1/mond26006.html](http://www.Lrrd.org/Irrd26/1/mond26006.html).
8. K. C. Das, S.S. Paul, L. Sahoo, K. K. Baruah, P. K. Subudhi, K. Ltu and C. Rajkhowa (2014) Bacterial diversity in the rumen of mithun (*Bos frontalis*) fed on mixed tree leaves and rice straw based diet. *AFRICAN journal of Microbiological Research* DOI: 10.5897/AJMR2013.6507. Article no.: 78BFODE46929 [http:// www.academicjournals.org/AJMR](http://www.academicjournals.org/AJMR).
9. O. K. Raina, Siju Susan Jacob, M. Sankar, D. Bhattacharya, S. Bandyopadyay, Anju Vargese, Jayanta Kumar Chamuah & H. Lalrinkima (2013). Genetic characterization of *Fasciola gigantica* from different geographical regions of India by ribosomal DNA markers. *J Parasit Dis* DOI 10.1007/s12639-013-0276-7.
10. R. Laha, C. Rajkhowa, J. K. Chamuah and A. Goswami (2013) Gastrointestinal Parasitic Infections in Mithun in organized Farm. *Indian Journal of Hill Farming* 26(1): 45-46.
11. J. K. Chamuah, A. Sakhirie, K. Khate, K. Vupru and C. Rajkhowa (2013) "Seroprevalence of *Toxoplasma gondii* in mithun (*Bos frontalis*) from north eastern hilly region of India". *J. Parasit Dis* (DOI: 10.1007/s12639-013-0396-0).
12. J. K. Chamuah, P. Perumal, K. K. Baruah and D. Borkotoky (2013) Trichobezoars in Mithun calves *Indian Vet. J.* 90(4):98.
13. J. K. Chamuah, P. Perumal and A. Mech (2013). Epidemiology and control measures of helminthes Parasites in small ruminants. *Journal of Bioresources and stress Managment* 4(2):278-287.

14. Kumar, S., Singh, B. R., Bhardwaj, M and Singh, V. (2014) Occurrence of Bordetella Infection in Pigs in Northern India. International journal of Microbiology, Article ID 238575, 6 pages <http://dx.doi.org/10.1155/2014/238575>.
15. Singh, B. R., Singh, V., Ebibeni, N and Singh, R. K. (2013) Antimicrobial and Herbal Drug Resistance in Enteric Bacteria Isolated from Faecal Droppings of Common House Lizard/Gecko (*Hemidactylus frenatus*). International Journal of Microbiology Volume 2013, Article ID 340848, 8 pages <http://dx.doi.org/10.1155/2013/340848>.
16. Singh, B. R., Singh, R. K. and Singh, V. (2014). Microbial Quality and Safety of Axone-Akhuni, a Fermented Soyabean Food of Nagaland. Noto-are 15185525: Medicine.
17. Jayaganthan, P., Perumal, P., Balamurugan, T.C., Verma, R.P., Singh, L. P., Pattanaik, A. K., Meena Kataria. 2013 Effect of *Tinospora cordifolia* supplementation on semen quality and hormonal profile of ram. Animal reproduction science 140(1): 47-53.
18. P. Perumal, S. Das, D. N. Mohanty, A. K. Barik and P. C. Mishra.2013. Study of certain haematological parameter in repeat breeding cows. International Journal of Bio- Resource and Stress Management 4(2):242-245.
19. M. Verraselvam, R. Sridhar, M. G. Jayathangaraj, P. Perumal and N. V. Rajesh. 2013. Prevalence of endoparasitic infection in captive sloth bears. Indian Veterinary journal 90(8):09-11.
20. P. Perumal, Kezhavituo Vupru, K. Khate and J.K. Chamuah. 2013. Dystocia due to bilateral shoulder flexion in a swamp buffalo- Case report. International Journal of Livestock Research. 3(2):191-192.
21. T. C. Balamurugan, P. Perumal, S. M.K. Thirumaran, P. Jayaganthan, S. Namagirilakshmi, P. Selvaraj, S. Jayachandran and P. Krupakaran. 2013. Embryonic stem cells and their application in buffalo production and reproduction. Advance Biotech. 12(07):46-48.
22. P. Perumal, Kezhavituo Vupru and C. Rajkhowa. 2013. Effect of addition of reduced glutathione on the liquid storage (5°C) of mithun (*Bos frontalis*) semen. Indian Journal of Animal Science. 83(10):1024-1028.
23. P. Perumal, Kezhavituo Vupru and C. Rajkhowa. 2013. Effect of addition of taurine on the liquid storage (5°C) of mithun (*Bos frontalis*) semen. Veterinary Medicine International. Volume 2013, Article ID 165348,7 ,Pages, <http://dx.doi.org/10.1155/2013/165348>.
24. J. K. Chamuah, P. Perumal and A. Mech.2013. Epidemiology and Control measures of Helminth Parasites in small ruminants. International Journal of Bio- Resource and Stress Management 4(2): 278-287.
25. J.K. Chamuah, S.R Pegu, O.K Raina, S.J. Siju, A.Sakhrie, Anil Deka and C. Rajkhowa. (2014). Pimpily gut condition in Mithun (*Bos frontalis*) calves.J Parasit Dis DOI 10.1007/s12639-014-0487-6.

26. J.K. Chamuah, P.R. Dutta, Ved Prakash, O.K. Raina, A. Sakhrie, D. Borkotoky, P. Perumal, R. Neog and C. Rajkhowa (2014). Comparative efficacy of some plant extracts on *Rhipicephalus (Boophilus) microplus* infestation on mithun (*Bos frontalis*) in the north east, *Journal of Veterinary Parasitology*, 27(1):5-7.
27. N. Ebibeni, J. K. Chamuah, O.K. Raina, A. Sakhrie, P. Perumal, D. Borkotoky and N. Lily (2014). Prevalence of gastrointestinal parasites of pigs in Dimapur district (Nagaland), *Journal of Veterinary Parasitology* 27(1): 57-58.
28. Srivastava, N., Srivastava, S.K., Ghosh, S.K., Amit Kumar, Perumal, P. and Jerome, A. 2013. Acrosome membrane integrity and cryocapacitation are related to cholesterol content of bull spermatozoa. *Asian Pacific Journal of Animal Reproduction*. 2(2): 126-13.
29. M. Veeraselvam, R. Sridhar, T.M.A. Senthikumar, P. Perumal and M.G. Jayathangaraj.2013. Detection of *Mycobacterium bovis* in captive sloth bears (*Melursus ursinus*) by polymerase chain reaction. *International Journal of Zoology and Research*. 3(5):17-20.
30. M. Veeraselvam, R. Sridhar, M. G. Jayathangaraj and P. Perumal. 2013. Behavioural study of captive sloth bears using environmental enrichment tools. *International Journal of Zoology*. Volume 2013, Article ID 526905,6 Pages, <http://dx.doi.org/10.1155/2013/526905>.
31. J.S. Rajoriya , J.K. Prasad, S. K. Ghosh, P. Perumal, Anuj Kumar, Shobhana Kushal and Mahak Singh 2013. Effect of seasons on enzymatic changes and cholesterol efflux in relation to freezability in Tharparkar bull semen. *Asian Pacific Journal of Reproduction*. 2 (4): 280-288.
32. M. Veeraselvam, R. Sridhar, T.M.A. Senthikumar, P. Perumal and M.G. Jayathangaraj 2014. Diagnosis of *Mycobacterium bovis* in captive sloth bears (*Melursus Ursinus*) by polymerase chain reaction. *Proceedings of zoological Society*. DOI 10.1007/s12595-014-0102-y.
33. Kumar, S. Dey, K. Mahendran, M. Sarvanan, K. Sarma, Rajat Garg and P. S. Banrjee (2013). Concurrent Babesiosis, Monocytic and Granulocytic Ehrlichiosis in a dog. *Indian Vet. J.*, 90(7):66-68.
34. Akhilesh Kumar, S. Dey and Sumit Mahajan (2013) Diagnostic potential of vertebral heart scale in dilated cardiomyopathy in dogs. *Indian Vet. J. Med.*, 33(2): 131-132.
35. Sumit Mahajan, Rajesh Agrawal, Mahesh Kumar, Anand Mohan, Akhilesh Kumar Nishi Pradhan and Raj Narayan Trivedi (2013) Electron microscopy based detection of PPR virus in goat and confirmation by sandwich ELISA and RT-PCR (2013). *Indian Vet. J. Med.*,33(2): 92-95.
36. S. Mahajan, A. Kumar and P. S. Maurya (2013). Therapeutic management of *psorptes natalensis* infestation in a buffalo. *Intas Polivet.*, 14(II):317-318.

37. S, Mahajan, K. Mahendran and A. Kumar (2013). Clinical Management of moist Eczema in a dog. *Intas Polivet.*, 14(II):403-404.
38. Sumit Mahajan, K. Mahendran, S. Dey and Akhilesh Kumar (2013). Polioencephalomalacia in a goat. *Indian Vet. J. Med.*, 33(2):148-149.
39. P. Perumal, J.K. Chamuah and C. Rajkhowa. 2013. Effect of catalase on the liquid storage (5°C) of mithun (*Bos frontalis*) semen. *Asian Pacific Journal of Animal Reproduction*. 2 (3): 209 – 214.
40. P. Perumal, K. Khate and C. Rajkhowa. 2013. Effect of foot and mouth disease vaccination on seminal antioxidant profiles of mithun (*Bos frontalis*). *Advances in Animal and Veterinary Sciences*. 1 (5): 151 -156.
41. P. Perumal, K. Khate and C. Rajkhowa. 2013. Effect of foot and mouth disease vaccination on seminal and biochemical profiles of mithun (*Bos frontalis*) semen. *Asian Pacific Journal of Animal Reproduction*. 2(3): 209-214.
42. P. Perumal, Kezhavituo Vupru and K. Khate. 2013. Effect of addition of melatonin on the liquid storage (5°C) of mithun (*Bos frontalis*) semen. *International Journal of Zoology*. Volume 2013, Article ID 642632, 10 Pages, <http://dx.doi.org/10.1155/2013/642632>

2014-2015

1. Das, K. C., Sharma, R., Paul, S. S., Dhama, K., Haque, N., Baruah, K. K. and Rajkhowa, C. (2014) Isolation and Characterization of superior fibre degrading fungus from Rumen of Mithun (*Bos frontalis*). *Asian Journal of Animal and Veterinary Advance* 9(9):587-592, 2014ISSN 1683-9919 DOI: 10.3923 ajava.2014.587.592@2014 Academic journal Inc.
2. Mukharjee Sabyasachi, Mukharjee Anupama, Longkumar I, Mech Moonmoon, Khate Kabu, P. Perumal and Rajkhowa Chandan. 2014. Morphometric Characterization of Indian Mithun. *Indian Journal of Animal Sciences* 84(6):699-702.
3. Mukharjee, S. Mukharjee, I. longkumar and A. O. Adebambo (2014). Molecular cytogenic studies on Indian Mithun, Gaur, Mithun cattle crossbred and cattle. *Chromosome Research*, 22(3):410.
4. Mukharjee, S. Mukharjee and I. longkumar (2014). Cytogenic architecture of Indian Mithun (*Bos frontalis*), Mithun cattle crossbred by conventional staining, G-C and R- bonding Techniques. *Chromosome Research*, 22(3):427.
5. M. H. Khan, K. C. Nath, B. C. Deka and Suresh Kumar 2015. Qualitative assessment of sperm during conventional vapour freezing of boar semen. *Livestock Research International*, 3(1):14-19.

6. M. H. Khan, K. C. Nath, S. Naskar, B. C. Deka and Suresh Kumar. 2015. Electron microscopic studies of porcine sperm; changes during freezing and post thawing. *Indian Journal of animal sciences*. (Accepted).
7. M. H. Khan, K. C. Nath, B. C. Deka and S. Naskar. 2014. Post thawing acrosome and membrane integrity of boar spermatozoa frozen after holding at 24°C with different holding periods. *Livestock Research International*. 2(4):81-86.
8. P. K. Bharati. M. H. Khan, Champak Barman, G. Kadirvel, Suresh Kumar, R. Basumatary, S. Doley and G. Khargaria. 2014. Growth, feed efficiency and health performance of Soviet Chinchilla rabbit fed with different leaves of cole crop under subtropical hill ecosystem of Meghalaya. *Indian Journal of Extension Education* 14(4):52-54.
9. Prasad, N., Singh, S.P., Sangwan, S. S. and Gautam 2014. Effectiveness of extension massage as perceived by livestock farmers, *Haryana Veterinarian*, 54:18-22.
10. J. K. Chamuah, S. S. Jacob, A. Sakhire and D. Borkotoky (2014). Serological prevalence of *Fasciola gigantica* in Mithun (*Bos frontalis*). *Int. J. Livest. Res.*, 4(5):15-20 DOI: 10.5455/ijlr/20140730091452.
11. J. K. Chamuah, K. Bhattacharjee, P. C. Sarmah, O.K. Raina, S. Mukharjee and C. Rajkhowa (2015). Report of *Amblyomma testudinarium* in Mithun (*Bos frontalis*) from eastern Mizoram (India). *J. Parasit Dis.* DOI 10.1007/s12639-015-0654-4.
12. J. K. Chamuah and D. Borkotoky (2015). Comparative study of occurrence of Gastrointestinal Parasites in Tho Tho and cross bred cattle of Nagaland. *Indian Journal of Hill Farming* 27(2) 52-53.
13. J. K. Chamuah, D. Borkotoky, P. C. Sarmah, S. Lama and P. R. Dutta (2014). Lice infestation in Mithun (*Bos frontalis*) of Nagaland. *Veterinary Research International* 2(4):103-104.
14. Singh, B. R., Singh, R. K. and Singh, V. (2014). Aerobic Mesophilic Bacterial flora of Vagina of Healthy Mithun (*Bos frontalis*). *J. Genit. Syst. Disor.*, 3:3. [http:// dx.doi.org 10.4172325-9728.1000128](http://dx.doi.org/10.4172325-9728.1000128).
15. Singh, B. R., Singh, V., Ebibeni, N and Singh, R. K. (2014). Maternal transfer of bacteria to eggs of common house Gecko (*Hemidactylus frenatus*). *J. Microbiol. Res.* 4(2): 78-85 DOI:10.5923/j.microbiology.20140402.06.
16. Sandeep kumar, Bhoj R. Singh, Monika Bhardwaj and Vidya Singh (2014). Occurrence of *Bordetella* infection in pigs in Northern India. *International Journal of Microbiology*. ID 238575. [http:// dx.doi.org 10.11552014238575](http://dx.doi.org/10.11552014238575).
17. Chandan Prakash, P. Das, B. V. Sunil Kumar, Bincy Joseph, Vidya Singh, Ajay Pratap Singh, Yathish Hirehallur Maheshwarppa. (2014). *National Academy science letter*, 14. DOI: 10.1007/s4009014-0302z.
18. Singh, B. R., Singh, R. K. and Singh, V (2014). Microbial quality and safety of Axone-Akhuni, a fermented soyabean food of Nagaland. *Noto-are* 15185525 *Medicine*.

19. P. Perumal, S. K. Srivastava, K. K. Baruah and S. K. Ghosh 2014. Physico morphological attributes of Mithun (*Bos frontalis*) semen. Indian Journal of Animal Science. 85(2):151-154.
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21. P. Perumal, Brijesh Kumar and C. Rajkhowa. 2014. Calving trend in Mithun (*Bos frontalis*) . Indian Journal of Animal Science. 84(7): 750-752.
22. G. Kadriavel, Satish Kumar, S. K. Ghosh and P. Perumal. 2014. Activity of antioxidative enzymes in fresh and frozen thawed buffalo spermatozoa in related to lipid peroxidation and semen quality. Asian Pacific Journal of Reproduction. 3(3):210-217.
23. P. Perumal, S. K. Srivastava, S. K. Ghosh and K. K. Baruah. 2014. Computer assisted sperm analysis of freezable and non-freezable Mithun (*Bos frontalis*) semen. Indian Journal of Animals. Volume 2014. Article ID 675031, 6 Pages <http://dx.doi.org.101155> 2014 6 75031.
24. P. Perumal, S. K. Srivastava, K. K. Vupru, K. Khate and C. Rajkhowa. 2014. Semen quality parameters of freezable and non- freezable ejaculates of Mithun (*Bos frontalis*) bulls. Advances in Animal and Veterinary Sciences. 31(1): 11-18.
25. D. Borkotoky, P. Perumal and R.K. Singh. Morphometric attributes of Naga Local Pigs. D. veterinary Research International. 2(), 08-11-2014.
26. D. Borkotoky, J. K. Chamuah, A. Sakhire, P. R. Dutta N. Ebibeni and K. Lovingson. Occurrence of gastrointestinal parasites of indigenous pigs in Phek District of Nagaland. International Journal of Livestock Research 4(6):37-40, September 2014.
27. Jayanta Kumar Chamuah, Aseno Sakhrie, Sanjeevini Lama, Subhas Chandra, Gajanan M. Chigure, Ram Krishna Bauri and Siju S. Jacob (2015). Molecular characterization of *Setaria digitata* from Mithun (*Bos frontalis*). Acta Parasitologica, 2015, 60(3), 391–394;ISSN1230-2821.
28. P. Perumal and C. Rajkhowa. 2015. Effect of melatonin on the liquid storage (5°C) of semen with retrospective study of calving rate at different season in mithun (*Bos frontalis*). Asian Pacific Journal of Reproduction. 4(1): 1-12
29. P. Perumal, A.K. Nahak, K. Vupru, K. Khate, T.C. Balamurugan, R. Prakash Krupakaran. 2015. Effect of addition of bovine serum albumin on the liquid storage (5°C) of mithun (*Bos frontalis*) semen. Journal of Cell and Tissue Research. 15(1): 4795 – 4800.

List of Patents filed by NRC on Mithun during last three years

Sl. No.	Subject	Application No.	Filing date
1.	Making leather	360/KOL/2012	30.03.2012
2.	Mithun hide chrome staining	1197/KOL/2012	17.10.2012
3.	Post-tanning process	1276/KOL/2012	07.11.2012
4.	Post-tanning process	1277/KOL/2012	07.11.2012
5.	Processing rabbit pelt	1334/KOL/2012	12.11.2012
6.	Mithun hide bio-processing	1402/KOL/2012	13.12.2012
7.	Chrome staining remover	183/KOL/2013	18.02.2013
8.	Processing rabbit fur	192/KOL/2013	19.02.2013