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## NIANP NEWS & Views

### Director's Desk

India holds the highest livestock population of the world which substantially contributes to the national economy and socio-economic development of rural population. Feeding of this huge livestock population is of foremost importance to ensure the livelihood of the rural farmers. ICAR-NIANP is working on this line to address the needs of farmers by developing various fodder production systems, particularly alternate feed resources and use of byproducts of fruit industries as feed resources and advancement of reproductive technologies to augment the productivity of farm animals. The divergence in the availability of feed and fodder varies across the country and states, because the farming is highly dependent on monsoon in India where the crop residues are mainly used as a fodder for livestock. The information of feed and fodder availability developed by the institute will be highly useful to livestock farmers as well as the feed industries in the formulation of region specific complete feeds / feed blocks for the sustainable development of livestock sector.

The institute organizes various human resource development programmes to disseminate the latest technologies to the farmers at field level. Recently, ICAR-NIANP organized a technical seminar on 'Role of nutrition in augmenting fertility and productivity in bovines' in association with Karnataka Milk Federation where 150 field extension officers of different milk unions of Karnataka participated. Further, the field Veterinary officers of various states of the country were trained for five days on 'Recent technologies in animal nutrition and fertility management' in collaboration with MANAGE, Hyderabad.

I am pleased to share that the Institute has hosted 7<sup>th</sup> Pan Commonwealth Veterinary Conference (PCVC7) from 3<sup>rd</sup> to 7<sup>th</sup> March, 2019 on 'The role of Veterinarians in addressing the global challenges to the lives of our pets, livestock, wildlife, humans and our environment' at Bengaluru. In addition, ICAR-NIANP, Bengaluru also organized an expert consultation meeting on 'Identification of best practices in livestock and fodder production and management' for SAARC countries from 21<sup>st</sup> to 23<sup>rd</sup> May, 2019 sponsored by the SAARC Agricultural Centre, Bangladesh. Further, we are jointly working on international collaborative projects with Germany, France and Hungary in which the scientists of the institute are provided with an opportunity to exchange ideas on cutting edge research areas in the field of animal nutrition and physiology.

I congratulate the entire team of ICAR-NIANP for their hard work and commitment for transforming this Institution into a centre of excellence. I complement the editorial team for bringing out this issue of the NIANP News Letter.

*Raghavendra Bhatta*

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## Research News

**Ayurvedic Medicinal Residues as a value feed for Livestock**

The production and productivity of livestock is directly associated with the availability of feed resources. To ensure the demand of livestock feed under the changing climate scenario is the foremost important to sustain the livestock production. Therefore, the search for alternate feed resources is highly essential. The Indian Ayurvedic industry uses thousands of tons of herbs, its residues may be converted in to value source of livestock feed. Thailam (oil based) and kasayam (decoction) are the major available Ayurvedic medicinal residues, where thailam residues are high in crude protein and ether extract ranged between 21-27% and 11-23% respectively. The kasayam residues are mostly fibrous with low protein content between 5.5 to 6.5% on dry matter content. A study was conducted using thailam ayurvedic medicinal residues viz. Ksheerabala and Dhanwantharam at the level of 20 and 40% protein replacement of soybean meal (SBM) and ground nut cake (GNC) as a protein source in concentrate feed. The thailam residues contains high crude proteins, essential oils and secondary metabolites (Table 1).

The protein level of SBM and GNC can be replaced by Ksheerabala or Dhanwantharam thailam residue up to 40% in the concentrate mixture for goat without affecting the in vitro digestibility attributes and rumen bacterial diversity. The inclusion of thailam residues improves meat quality in terms of poly unsaturated fatty acids and reduces feed cost and cost per kg weight gain by 18-20%.

Thus, both the Dhanwantharam (Table 2) and Ksheerabala (also tried on goats in this study) given almost same results and can be included safely in the concentrate mixture of male goat kids up to 40% protein of SBM and GNC (22.7 kg Ksheerabala and 25.4 kg Dhanwantharam per 100 kg concentrate mixture) for improved meat quality and reduced feed cost (Table 2). Further studies are required to validate the Ayurvedic medicinal residues for milch animals as well as in monogastric animals like swine and poultry.

**Dhanwatharam Thailam Residue**

**Table 1. The nutrients, secondary metabolites and essential oil composition of Dhanwantharam thailam residue**

Nutrient composition		Secondary metabolites and essential oils	
Particulars	Percentage (%)	Particulars	Percentage (%)
Dry matter	94.90	Total tannins	1.11
Crude protein	24.24	Total Saponins	9.40 g / 100 g
Total ash	9.72	Caryophyllene	18.75
Ether extract	11.99	Eugenol	13.29
Crude fiber	5.40	Alloaromadendrene	11.40
Neutral detergent fiber	41.20	Delta cadinene	4.34
Acid detergent fiber	31.45	Phenol, 2-methoxy-4-(2-propenyl)-4-acetate	5 - 7
Calcium	2.09		
Phosphorus	1.11		

**Table 2. Cost benefit ratio of feeding different levels of Dhanwantharam thailam residues as concentrate feed in goats for a period of 150 days**

Particulars	Concentrate	Dhanwantharam residue (20%)	Dhanwantharam residue (40%)
Total concentrate intake (kg)	56.41	55.60	54.50
Cost of concentrate (Rs / kg)	20.02	18.23	16.43
Total cost of concentrate (Rs)	1129.00	1014.00	900.00
Total straw intake (kg)	41.77	41.72	39.53
Cost of straw (Rs / kg)	6.00	6.00	6.00
Total cost for straws (Rs)	250.62	250.32	237.18
Total expenses for feed (Rs)	1379.62	1264.32	1137.18
Total weight gain (kg)	9.42	9.84	9.68
Cost / kg weight gain (Rs)	146.00	128.50	117.00
Profit per kg weight gain (Rs)	-	17.50	29.00
% Reduction in cost per kg weight gain	-	12.31	19.85
Reduction of cost for concentrate mixture (Rs/kg)	-	1.79	3.59
Percentage cost reduction for concentrate mixture	-	8.94	17.93



## Events

### Technical Seminar for Field Extension Officers

A technical seminar on 'Role of Nutrition in Augmenting Fertility and Productivity in Bovines' was organized by ICAR-NIANP, Bengaluru in association with Karnataka Milk Federation (KMF) on 19<sup>th</sup> January, 2019. About 150 field extension officers of different milk unions of Karnataka participated in the seminar.



### 7<sup>th</sup> Pan Commonwealth Veterinary Conference

The Institute hosted 7<sup>th</sup> Pan Commonwealth Veterinary Conference (PCVC7) from 3<sup>rd</sup> to 7<sup>th</sup> March, 2019 on 'The Role of Veterinarians in Addressing the Global Challenges to the Lives of Our Pets, Livestock, Wildlife, Humans and Our Environment'.



### Workshop on Climate Change and Livestock Production

The institute organized a workshop on 'Climate Change and Livestock Production: Current Scenario and Way Forward' on 8<sup>th</sup> March, 2019.



### Research Advisory Committee Meeting

The 24<sup>th</sup> meeting of the Research Advisory Committee (RAC) was held at the Institute on 11<sup>th</sup> & 12<sup>th</sup> March, 2019 under the chairmanship of Dr K Pradhan, Chancellor, SOA University, Bhubaneswar, former Vice-Chancellor, OUAT, Bhubaneswar and Rajasthan Agricultural University, Bikaner.



### Institute Management Committee Meeting

The Institute Management Committee meeting was held at ICAR-NIANP on 18<sup>th</sup> March, 2019 under the chairmanship of Dr Ragavendra Bhatta, Director.



### Institute Research Committee Meeting

The annual Institute Research Committee (IRC) meeting was held at ICAR-NIANP on 26<sup>th</sup> & 27<sup>th</sup> April, 2019 under the chairmanship of Dr Raghavendra Bhatta, Director.





### Expert Consultation Meeting for SAARC Countries

The ICAR-NIANP, Bengaluru organized the expert consultation meeting on 'Identification of Best Practices in Livestock and Fodder Production and Management' for



SAARC countries from 21<sup>st</sup> to 23<sup>rd</sup> May, 2019 sponsored by the SAARC Agricultural Centre, Bangladesh.

### Celebration of Women's Day

The Women's Cell of the institute celebrated the 'International Women's Day on 8<sup>th</sup> March, 2019.



### Training Programme for District level Veterinary Officers

A five day training programme on 'Recent Technologies in Animal Nutrition and Fertility Management' was organized by ICAR-NIANP from 17<sup>th</sup> to 21<sup>st</sup> June, 2019 sponsored by MANAGE, Hyderabad.



### Celebration of International Day of Yoga

ICAR-NIANP, Bengaluru celebrated the 5<sup>th</sup> International Day of Yoga on 21<sup>st</sup> June, 2019 and the employees enthusiastically participated.



### Visitors

#### Visit of Honourable Vice Chancellor, MAFSU

Dr A Paturkar, Honourable Vice Chancellor, MAFSU, Nagpur visited the institute on 23<sup>rd</sup> May, 2019 and interacted with scientists.



#### Laboratory Visit of RAC Members

The members of newly appointed Research Advisory Committee have visited the laboratories and experimental livestock unit facilities of the institute on 11<sup>th</sup> March, 2019.





## Memorandum of Understanding



ICAR-NIANP, Bengaluru signed a memorandum of understanding with M/s Hydrogreens Agrotech, Bengaluru on 5<sup>th</sup> February, 2019 for a joint R & D programme to standardize the key operational parameters for an economical model of hydroponic grain sprouts production unit.

## Awards & Recognitions

Letha Devi G, received Best Paper Presentation Award for the Paper Entitled 'Water Use and Dairy Production System: An experience in Karnataka' during International Seminar on International Seminar on Innovative Extension Management for uplifting livelihood of farmers – Status, Initiatives and Way forward - ISEM 2019, held at Madras Veterinary College, Chennai during 27<sup>th</sup> & 28<sup>th</sup> June, 2019.

Dr Suganthi RU, received Best Paper Presentation Award for 'Study of a unique phytogetic blend as alternative to antibiotic growth promoter in broiler chickens' in 7<sup>th</sup> Pan Commonwealth Veterinary Conference (PCVC7) held from 3<sup>rd</sup> to 7<sup>th</sup> March, 2019 by Oso OA, Suganthi RU, Malik PK, Thirumalaisamy G, Heartwin A, Awachat VB and Bhatta R.



Dr Binsila B Krishnan received 'Early Career Research Award' by DST-SERB, 2019.

Master degree student Ms Pragna Prathap from ACCER, KAU, who have pursued her dissertation work at NKIP Lab, ICAR-NIANP was awarded with the prestigious Graduate Research Scholarship to pursue doctorate programme at Australia.



## Patent Filed

Roy SC. A gel-based zymographic method for detection of anti-trypsin activities in biological fluids. Application No. 201941003157, dated 25<sup>th</sup> January, 2019.

Bhatta R, Malik PK, Kolte AP. Anti-methanogenic feed supplement. Application No. 201941004992, dated 8<sup>th</sup> February, 2019.

Binsila BK, Selvaraju S, Arangasamy A, Bhatta R. Method of purification and culture of sheep spermatogonial stem cells. Application No. 201941010473, dated 18<sup>th</sup> March, 2019.

## Overseas Visit

Dr PSP Gupta and Dr S Mondal visited University of Veterinary Medicine, Budapest, Hungary under Indo-Hungary Project 'Strategic improvement of efficiency of vitrification of preantral follicles and embryos of sheep and buffalo: Genomic changes with reference to apoptosis and developmental competence' from 12<sup>th</sup> to 24<sup>th</sup> March, 2019.



## Trainings

### Training Programme for Dairy Farmers

The Institute organized a two day training programme for five elite dairy farmers from Kottayam district of Kerala under the ATMA programme on 23<sup>rd</sup> & 24<sup>th</sup> January, 2019.





### Attachment Training for Newly Recruited ARS Scientists

The Institute organized three month attachment training programme for the two newly recruited ARS scientists. Dr AS Mahla, Scientist, ICAR-CSWRI, Avikanagar, completed his training under the mentorship of Dr S Selvaraju on 8<sup>th</sup> February, 2019. Dr AP Madhusoodan, Scientist, ICAR-IVRI, Mukteshwar, completed his training under the mentorship of Dr V Sejian on 21<sup>st</sup> February, 2019.

### Field Programmes

#### Demonstration of NIANP Technology

ICAR-NIANP demonstrated and trained the farmers on Azolla cultivation and Hydroponic maize grain sprouts production on 21<sup>st</sup> February, 2019 at Lakshmidivipura, Bengaluru Rural.



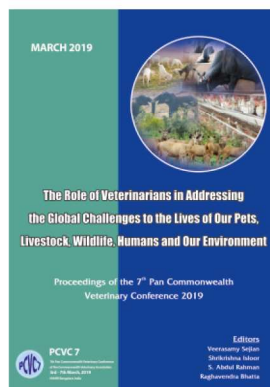
#### Animal Health Camp

ICAR-NIANP organized 'Animal health camp' at Lakshmidivipura and Timmojanahalli villages on 11<sup>th</sup> & 28<sup>th</sup>



June, 2019, respectively for reproductive disorders under 'Farmer FIRST Project'.

### Publications



Letha Devi G, Kataktalware MA, Kolte AP. 2019. Intellectual Property Rights in Agricultural Research. Satish Serial Publishing House, New Delhi, pp 1 - 138. ISBN 9788193906590.

Ayyappan S, Kataktalware MA, Letha Devi G. 2019. Agri Startups for Smart Farming. Satish Serial Publishing House, New Delhi, pp1-154. ISBN 9789388892018.

Gowda NKS, Giridhar K, Chandrappa T, Letha Devi G. 2019. Calender-2019 with technology depiction on livestock management (in Kannada) for distribution under MGMG programme. Published by the Director, ICAR-NIANP, Bengaluru.

### Personnel

Joining	: Smt K Bharathi joined at ICAR-NIANP as Technical Assistant (T-3) on 16 <sup>th</sup> January, 2019
Superannuation	: Shri Chennamaraiah, Skilled Supporting Staff superannuated on 28 <sup>th</sup> February, 2019
	: Dr Swaraj Senani, Principal Scientist superannuated on 30 <sup>th</sup> June, 2019

### Hindi Programmes

Two day Hindi workshop organized on 'Usage of Rabhasha in Office work' 11<sup>th</sup> & 12<sup>th</sup> April, 2019 for Bengaluru based ICAR institutes. Further, two in house Hindi Workshops were also held at ICAR-NIANP on 'Enabling Unicode and Different Modes of Typing' and 'Official Work in Hindi and Incentive Schemes' on 27<sup>th</sup> March, 2019 and 22<sup>nd</sup> June, 2019, respectively.





The review meetings of the Official Language Implement Committee (OLIC) of the institute were held on 23<sup>rd</sup> March, 2019 and 28<sup>th</sup> June, 2019.



### Staff Welfare Activities

#### Republic Day Celebration

Institute celebrated the 70<sup>th</sup> Republic Day on 26<sup>th</sup> January 2019. Staff Welfare Club organized a sports meet for the employees and children on this occasion. The Director, ICAR-NIANP, hoisted the National flag and delivered the Republic Day speech, and distributed prizes to the winners of sports events.



#### Farewell

Staff Welfare Club organized a farewell party for Shri Chennamaraiah, Skilled Supporting Staff on 28<sup>th</sup> February, 2019 on the occasion of his superannuation.



A grand farewell function was arranged by the Staff Welfare club of the institute to bid farewell to Dr Swaraj Senani, Principal Scientist, Animal Nutrition Division on his



superannuation on 29<sup>th</sup> June, 2019.

### Other Activities

#### Celebration of National Productivity Week

ICAR-NIANP, Bengaluru celebrated National Productivity Week from 12<sup>th</sup> to 18<sup>th</sup> February, 2019 as per the directive of the National Productivity Council (NPC) and ICAR, with the theme 'Circular Economy for Productivity and Sustainability'

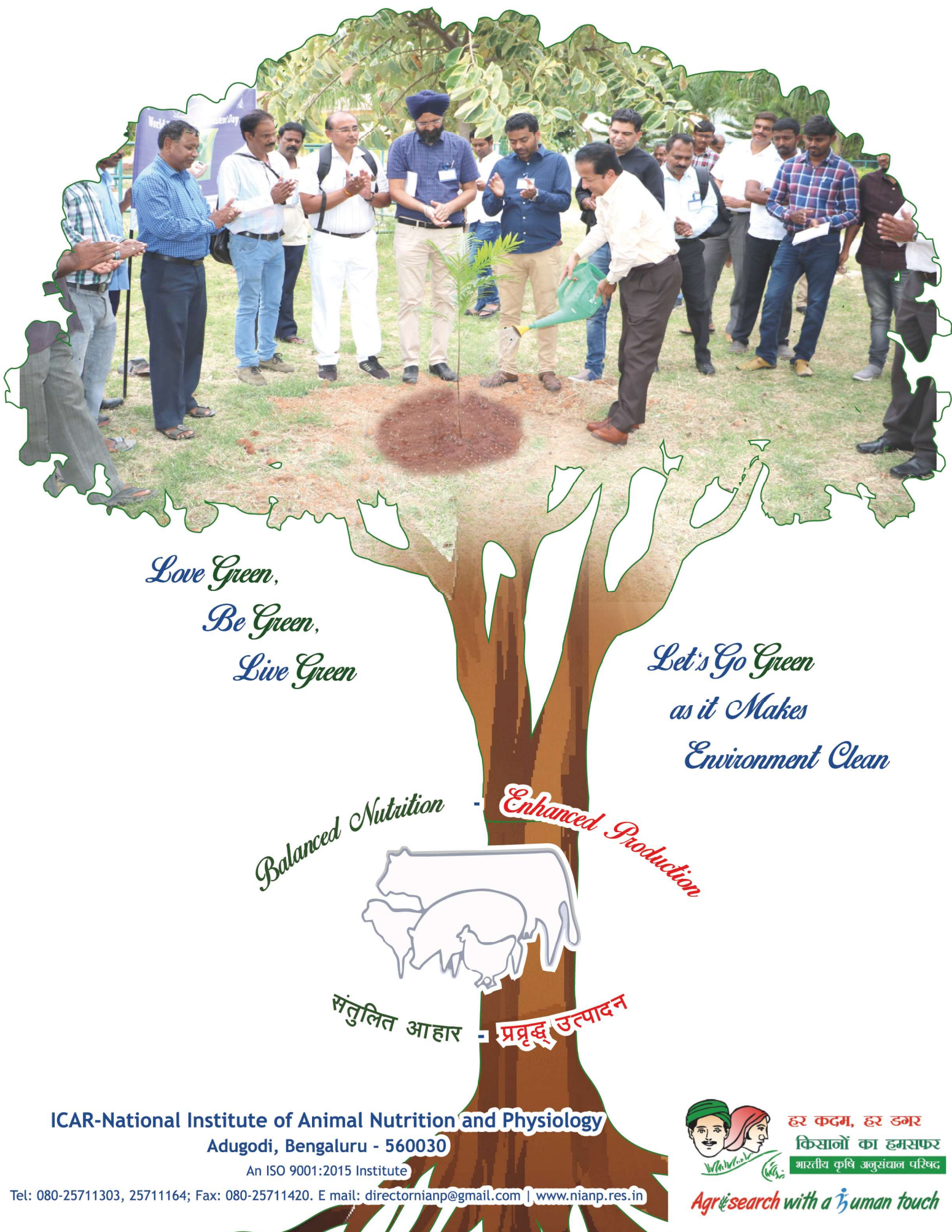


#### Pradhan Mantri Kisan Samman Nidhi Yojana

Institute employees participated in the video conference speech by Hon Prime Minister on the inauguration of 'Pradhan Mantri Kisan Samman Nidhi Yojana' on 24<sup>th</sup> February, 2019.







*Love Green,  
Be Green,  
Live Green*

*Let's Go Green  
as it Makes  
Environment Clean*

*Balanced Nutrition - Enhanced Production*

*संतुलित आहार - प्रवृद्ध उत्पादन*

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