

**ANNUAL  
REPORT  
2020-21**



**AYURVET  
RESEARCH  
FOUNDATION**



**INTEGRATION OF LIVESTOCK & AGRICULTURE  
FOR SUSTAINABLE DEVELOPMENT**



*Certificate of Registration*

(Quality Management System)

**KVQA CERTIFICATION SERVICES PVT. LTD.**

This is to certify that the Quality Management System of

**AYURVET RESEARCH FOUNDATION**

**Panipat - Gohana Road NH-71A, Village: Chidana, Tehsil:  
Gohana, Distt. Sonapat- 131306, Haryana, India**

Has been found to comply with the Quality Management  
System standard

**ISO 9001:2015**

**This certificate is valid for the following areas of research and  
services as mentioned**

**Research on Food Safety, Animal Health and Nutrition, Soil and Water  
Health, Quality Improvement of Medicinal Plants, Hydroponics; Skill  
Development, Rural Development and Women Empowerment.**

1<sup>st</sup> Surveillance Due On: 24/09/2020: Done On:  
2<sup>nd</sup> Surveillance Due On: 24/09/2021: Done On:

Certificate No: KDACQ2019100227  
Date of Issue: 24, October, 2019  
Valid Until: 23, October, 2022\*

Issued by

Authorized signatory KVQA



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\*Subject to successful completion of surveillance audits



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**PROFILE**

Name of the Organization	Ayurved Research Foundation
Registered Office Address	4 <sup>th</sup> Floor, Sagar Plaza, Distt. Center, Vikas Marg, Laxmi Nagar, Delhi-110092
Corporate Office Address	Unit No. 117, First Floor, KM Trade Tower, Plot No H-3, Sector 14, Kaushambi, Ghaziabad, U.P.- 201010
Field Office	Village-Chidana, Tehsil-Gohana, Distt-Sonapat Haryana-123301
Phone Number	0120-7100201
Website	www.ayurvedresearchfoundation.com
Name & Designation of Chief Functionary	Mr. MJ Saxena Managing Trustee
<b>Registration Details</b>	
Trust Registration No.	21973
Principal Act and By Law by which organization is governed	Indian Trust Act, 1882
Act under which registered	“Deed of Trust” dated November 16, 2005, registered at New Delhi under the Registration Act 1908
FCRA No.	Applied for renewal
Form CSR-1 Registration (Min. of Corporate Affairs)	CSR00006411
Income Tax	Section 12A
Income Tax Exemption	80G
Recognized by Department of Scientific & Industrial Research(DSIR)	Certificate No. F. No. 11/707/2016-TU-V
<b>Auditors</b>	Sandy Associates Chartered Accountants 104, Delhi Chamber, Delhi Gate, New Delhi-110002
<b>Banks</b>	ICICI Bank Canara Bank Punjab National Bank

## Chairman's Message



I have immense pleasure in presenting ARF annual report for the year of 2021. This is the 13th consecutive year of its publication. As the global activity on sustainability of the global environment and society continues to accelerate, there is need to continuously review the operations and approaches from the prospective of society and stakeholders for continuous improvement.



The year, which went by, saw COVID pandemic paralyzing the world and causing the disruption to the magnitude never experienced before. Ayurved Research Foundation apart from the research and development initiatives focussed towards the safety of stakeholders and wellbeing of the community we live and operate in.

Sustainability is integral part of the objectives of Research Foundation, aimed for better agriculture productivity and livestock health. Team ARF in collaboration with the Department of Agriculture, Government of Haryana successfully completed the soil evaluation programme of 3000 samples and distributed the free soil health cards to the farmers.

As part of the initiatives under 5F programme, team ARF made a good progress in testing of Aflatoxin antibiotics in milk and its residues in poultry fields and dairy products. The team successfully initiated the work towards NABL accreditation of ARF test house, which would further help in creating value for the farmers and stakeholders.

Various research programme supported by NABARD, NMPB and Mobius Foundation, undertaken for women empowerment and rural development in the villages of Sonipat. Our initiative on crop residue management helped in reducing pollution. Through its entrepreneurship development programme ARF, successfully empower the rural youth on profitable dairy farming. This helped in better reproductive efficiency in animals and livelihood creation in villages.

We will continue to do our best to earn the trust of our stakeholders by working diligently on the issues that we at the ARF recognise as our responsibility to resolve.

Best Wishes,

Yours sincerely

**Pradip Burman**

## Managing Trustee's Message



I am pleased to present the annual report of Ayurved Research Foundation for the year 20-21. The team ARF continued its focus on innovating the technologies for sustainable development and creating value for the stakeholders. In an effort to help the farmers doubling their income, ARF in collaboration with NABARD undertook various development programme for the Farmer Producer Organizations in the areas related to Livestock and Agriculture. These initiatives helped in creation of value and generation of employment.



During the COVID pandemic, team ARF, apart from the research and development initiatives focused towards the safety of stakeholders and wellbeing of the community. Team undertook sanitization programme and distribution of essential goods and food packets among the needy people. ARF signed an MOU with SVPUAT, Meerut, taking the total number of MOU's to 16.

Team ARF in collaboration with the Department of Agriculture, Government of Haryana successfully completed the soil evaluation programme of 3000 samples and distributed free soil health card to the farmers. The team successfully initiated the work toward NABL accreditation of ARF test house which would farmer trade would surely help the farmers and stakeholders. ARF scientists publish their work in scientific journals 14 paper were publish during the year. Our achievements inspire us to continue with our efforts to take the initiatives to next level towards achieving our objectives of sustainability and ONE HEALTH.

I wish to record my gratitude for all the neighbor collaborators especially NABARD and various organizations ARF Research Advisory committee members, trustees and donors for their valuable support.

Best Regards,

**MJ SAXENA**

## Board of Trustees



**Mr. Pradip Burman, Chairman:** An alumnus of the world-renowned MIT (Mechanical Engineering). Mr. Burman is the creator of the Trust. Mr. Burman has held several positions in Dabur India before joining the Board of Dabur in 1985. He is currently the Chairman of Dabur Nepal Pvt. Limited (a subsidiary of Dabur India Ltd.) and also serves as a promoter director on the Board of Aviva Life Insurance Co. Ltd. with many awards and honors in his name. He is also the Chairman of Ayurvet Limited and Mobius Foundation and has a passionate interest in social work and creative arts.



**Mr. Mohan Ji Saxena, Managing Trustee:** A gold-medal winning Pharmacy post-graduate from the prestigious Banaras Hindu University. Mr. Saxena retired as Managing Director of Ayurvet Limited. He has an experience of more than 3 decades in service of Animal health and has spent the last 28 years with Ayurvet, serving as the head of R&D before assuming the position of MD, Ayurvet and Managing Trustee, ARF. He has published several papers in reputed Journals and has an unflinching commitment to food safety, Anti-Microbial Resistance, animal health, agriculture, quality improvement in medicinal plants and rural development.



**Dr. V P Singh, Trustee:** He is Padma Shri awardee and Retired Principal Scientist And Program Leader (Rice), Division of Genetics at Indian Agricultural Research Institute, New Delhi. He is popularly known as the Father of Basmati Rice in India, introduces us to the never-before- seen aspects of basmati rice. He is ex-scientist in agriculture field in PUSA, Delhi and awarded Padma Shri on his work for creation of new Rice breed named India Gate Basmati Rice..









**Dr. Vibha Dhawan, Trustee:** Dr Dhawan is Director General of TERI. For more than three decades she has been actively involved in tree tissue culture and has developed the technique of in-vitro nodulation for the leguminous tree and has been instrumental in setting up of the modern tissue culture laboratory at the institute. She has a number of awards to her credit including: AIBA award in the category of Individual Scientist for the year 1998; Kamal Kumari Foundation award for Science and technology for the year 1998; First Biotech Product & Process Development and Commercialization Award of the Department of Biotechnology for the year 2000.



**Prof. AC Varshney, Trustee:** Prof.A.C.Varshney retired as Vice Chancellor Pt.Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwa Vidyalaya evam Go-Anusandhan Sansthan,Mathura (U.P.)in March 2016.Prior to that he held the position of Dean, College of Veterinary Sciences and Animal Husbandry, CAU, Aizawl, Mizoram and Dean, College of Veterinary and Animal Sciences, CSKHPKV, Palampur. Dr. Varshney has a brilliant academic record as a student as well as a teacher and scientist,and published 13 postgraduate theses and 160 research articles.

## Research Advisory Board

1	<p><b>Dr. Kusumakar Sharma</b> Chairman-Research Advisory Board, Ayurved Research Foundation (ARF), Former ADG-HRD, ICAR New Delhi</p>	 <p><b>Chairman</b></p>
2	<p><b>Dr. T.P. Trivedi</b> Project Director and Former ADG, ICAR New Delhi</p>	 <p><b>Member</b></p>
3	<p><b>Mr. Mohanji Saxena</b> Managing Trustee, Ayurved Research Foundation Director, Alternative Green Energy Solution Pvt. Ltd. Former Managing Director, Ayurved Ltd.</p>	 <p><b>Member</b></p>
4	<p><b>Prof. AC Varshney</b> Former Vice Chancellor, DUVASU, Mathura</p>	 <p><b>Member</b></p>
5	<p><b>Dr. Kuldeep Sharma</b> Former Director, Directorate of Publication and Information, ICAR, New Delhi.</p>	 <p><b>Member</b></p>
6	<p><b>Dr. Deepti Rai</b> Principal Scientist, Ayurved Research Foundation</p>	 <p><b>Secretary</b></p>



## Key Highlights

**Ayurvet Research Foundation (ARF)**, a Public Charitable Trust duly registered under the Indian Trust Act with own state of the art DSIR approved R&D Centre. Since 2005 ARF has successfully carried out research and extension activities in the area of food safety, soil and water health, quality control of medicinal plant, livestock production, health and nutrition management, better crop cultivation technologies, vermicomposting, trainings of youth and farmers, skill development and empowerment of women.

## Key activities

- A. Project on Soil Health Card:** ARF in collaboration with Dept. of Agriculture, Govt. of Haryana, has successfully completed evaluation of Soil Health Index of 3000 soil samples in Baroda Mor Village of Sonipat, Haryana. The Soil Health Card were developed, printed & handed over to farmers.
- B. Mechanized transplantation of hydroponically grown paddy nursery:** ARF successfully carried out Hydroponics paddy nursery transplantation in 101 acres of agricultural land, to demonstrate the value creation in productivity and saving of water and time.
- C. Demonstration of newly developed Wheat Varieties:** ARF has successfully demonstrated the performance of recently developed DBW-187, DBW-173 and DBW- 222. The nurseries of these varieties were raised in Hydroponics system and then was transplanted in soil. After demonstration, it was observed that DBW-173, DBW-187 and DBW-222 are superior to the other commonly used wheat varieties like HD-3967, HD- 2733, DBW-39 etc. The introduction of hydroponically raised wheat nursery significantly improved the crop yield and has made the crop effective even in late sown conditions.

**D. Rural Development Projects:** In an effort to increase the income of farmers, ARF has implemented various programs. Farmers and milk producers of the districts Sonipat and Panipat were mobilized to create Farmer Producer Organizations (FPOs). They are trained on methodology and benefits of Integrated farming, Organic farming, food processing, new technologies. We provided assistance in marketing their produce at different commercial platforms. Under organic farming and CAT programme farmers were given training in phased manner to replace the chemical fertilizers with vermicompost. Farmers were taken to different agricultural institutes in India to learn related technologies for easy adaptation and implementation in their fields.

**E. ARF Institute of Entrepreneurship Development** To create livelihood opportunities in rural India, ARF has trained 25 rural youths in AI and dairy farming for three months. Under this programme, youths were trained in both theoretical and practical aspects. Post training, most of the youths have started earning their livelihood by providing healthcare and AI services in their own village.

**F. Animal Health and Breed improvement programme:** In an effort to improve the breeds, ARF facilitated services of Artificial Insemination with semen of high milk yielding Sahiwal and Murrah breeds. The team successfully undertook 1179 AIs with success rate of 55%. The team also organized 27 Animal Health camps and treated closed to 600 cases of repeat breeding, mastitis, anestrus, indigestion etc, at the doorstep of farmers.

**G. ARF Test House:** Basis the request received from the farmers and our stakeholders, ARF decided to establish an NABL accredited test house. ARF Test House will be the commercial arm of Ayurvet Research Foundation. In its first phase it will

undertake testing of soil, water, animal feeds and herbs. Suitable initiatives were planned to submit the application for NABL accreditation.

**Governance**

Ayurved Research Foundation is governed by Board of Trustee(s) headed by Sh. Pradip Burman, Chairman. The research programme and extension activities conducted by the organization are regularly reviewed by Board to ensure fulfillment of its vision and implementation of objectives.

Our research program were undertaken as per guidance from Research Advisory Committee headed by Dr. Kusumakar Sharma (Former ADG-HRD, ICAR).

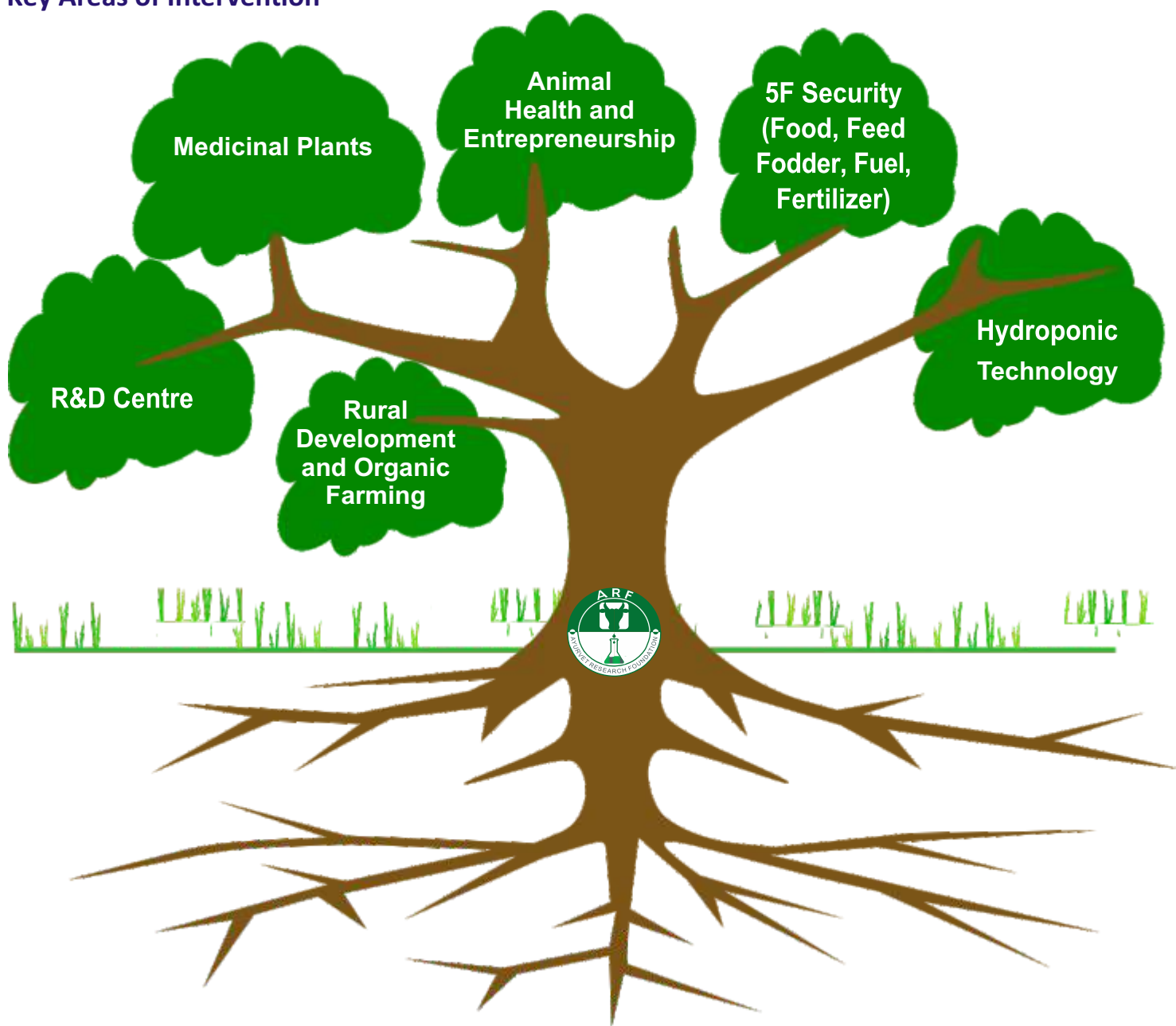
**Audits**

Internal and statutory audits are conducted and submitted to Board of Trustees.

**Regulatory Financial Compliance**

Ayurved Research Foundation is registered and Section 12A and 80G of Income Tax Act 1961, and adheres to all legal requirements.

**Key Areas of Intervention**



## 1.0 Research and Development Centre

Ayurved Research Foundation R&D Centre is recognized by department of DSIR, Ministry of Science and Technology as SIRO (Scientific and Industrial Research Organization) to conduct research and provide solution in the areas of food safety, antimicrobial resistance, animal health and nutrition, soil and water health, quality assurance of feed its raw material and testing of medicinal plant for improving their quality. R&D Centre is well equipped with 51 sophisticated instruments to carry out the research in these areas. In order to strengthen and streamline the processes, we follow ISO 9001:2015 guidelines, for which we are certified.



Quantification of active herbal ingredients with use of HPLC\*

\*HPLC- High-performance liquid chromatography

\*ELISA - Enzyme-Linked Immunosorbent Assay

In the year 2020-21, ARF has signed MOU with reputed SVBPUAT, Meerut to conduct research/extension work in the areas of livestock and agriculture for the benefit of farmers and society at large.



Quantification of Aflatoxins and Antibiotics by ELISA\* method

### 1.1. Research projects for the industry/institutions:

ARF undertook various projects involving industry and related stakeholders to provide solutions in the area of animal feed, herbal raw material and soil health management with the objective to provide quality raw materials and safe food production.

**1.1.1. Project Title:** To undertake soil testing program under the village level soil testing program to test the soil of village Baroda Mod (3000 acres) & distribute Soil Health Card.

**Project duration:** 4 months (Nov 20 to Feb 21)

**Objective:** To test soil of 3000 acres of land of village Baroda Mor, block Mundlana, tehsil Gohana, Sonipat, Haryana and distribute the cards with proper recommendation on dosage of appropriate fertilizer.

ARF R&D Centre got recognized by Govt. of Haryana as one of the approved facility to carry out soil testing in the state of Haryana. Team ARF systematically carried out the registration of farmers, collection of 3000 soil samples, analysis for 12 parameters namely N, P, K (Macro- nutrients); S (Secondary- nutrient); Zn, Fe, Cu, Mn, B (Micro - nutrients); and pH, EC, OC (Physical parameters). Soil Health cards were distributed to the farmers along with the recommendations for improving soil fertility.

**Results:** Soil of village Baroda Mor, Sonapat was found to be moderately alkaline Analysis of the data revealed that 78.0% of soil samples were deficient in Organic carbon. 100% in Nitrogen and 97.5% in Phosphorus. 95.0 % of samples were found to be high in Potassium content. Sulphur was found to be high in all the samples, whereas, secondary nutrients Zinc, Copper, Boron, Iron were found to be in range of medium to high, Manganese was observed as low as per the Govt. specifications.

**Recommendation:** To manage the low carbon content, it was recommended to use vermicompost (@ 2.0 ton/acre/year). This would help in replenishment of carbon,

improve water holding capacity and supplement availability of nutrients for better productivity.



**Analysis of soil sample using STFR\***

\*Soil Testing and Fertilizer Recommendation

**1.1.2. Project Title:** Recycling of biomass waste from herbal industry by windrow composting methodology.

**Objective:** To utilize the medicinal plant spent/waste produced in bulk quantity from herbal industry.

Management of medicinal plant spent as solid waste generated by herbal industry is the emerging challenge. These solid wastes are potential sources of organic matter and can play a key role in achieving sustainability in agricultural production. An alternative and profitable disposal method is therefore required to overcome the problem.

Adopted windrow methodology for duration of 08 weeks with regular overturns on weekly basis for sufficient aeration and thorough mixing of material till its conversion in compost. Occasional watering was done in all the groups to keep the material moist.



**Ready to use compost from herbal waste**

a) **Experimental row A:** Mixing of 33.0 Kg of medicinal plants spent with 17.0 Kg of fresh Cow dung,

b) **Experimental row B:** Mixing of 33.0 Kg of medicinal plants spent with 17.0 Kg of fresh Cow dung and addition of 100 g of earthworms.

c) **Experimental row C:** Mixing of 33.0 Kg of medicinal plants spent with 17.0 Kg of fresh Cow dung and addition of 50 g of Madhyam\*.

d) **Experimental row D:** Mixing of 50.0 Kg of medicinal plants spent with 50 g of Madhyam\*.

e) **Experimental row E:** Mixing of 50.0 Kg of medicinal plants pulverized spent with 50 g of Madhyam\*.

\*Microorganism culture

### **Results:**

a) It was observed that pulverizing the herbal spent (Experimental row–E) before composting helped in achieving the 50% conversion of raw material to compost.

b) The N and K contents were as good as that of control i.e. Vermicompost.

c) There was a 100 fold reduction in Total Coliform count in comparison to starting raw material.

d) Salmonella and E. coli were found to be absent in final product.

**1.1.3. Project Title:** Awareness and assessment of Mastitis in Sonipat and Panipat District.

**Duration:** 12 months (April 2020 - March 2021)

### **Objective:**

1) To identify the causal microorganism for mastitis and its sensitivity against antibiotics

2) To create awareness about udder health and prevention of mastitis.

Mastitis is the most dreaded disease for dairy farmers owing to its impact on milk production, increased treatment, labour and milk loss cost.

A study was taken up for identification of the mastitis causing organisms in dairy animals and their sensitivity

towards commonly used antibiotics. On recommendation of the veterinarians, around 125 milk samples of suspected cases were collected from 30 villages of district Sonipat and 75 samples from 21 villages of district Panipat. These samples were subjected to microbiological investigations to identify its causing organism and its susceptibility to various antibiotics. The awareness programs amongst the farmers were carried out to educate them on prevention of Mastitis. All the clinical cases of mastitis were treated under the guidance of veterinarian.

**Results:** It was also found that maximum cases were due to the infection of *S. aureus* and *E. coli*. Overall, it was found that usage of Enrofloxacin, Ciprofloxacin, Ceftriaxone/Tazobactam, Ciprofloxacin, Cefoperazone/sulbactam, Oxytetracycline, Neomycin, Chloramphenicol were more sensitive than rest of the antibiotics. The cure rate was close to 85%, which was appreciated by the veterinarians and farmers.



Culture sensitivity test: Zone of inhibition

**1.1.4. Project Title:** Total Aflatoxin evaluation in raw materials of cattle and poultry feed.

**Objectives:** To study the total aflatoxin in raw material for assuring the quality feed in Sonipat, Panipat, Jind, Karnal and Safido districts of Haryana.

**Duration:** 12 months

Aflatoxins are secondary metabolites produced by fungi which show toxic effects on human beings and animals.



Estimation of total aflatoxins

Mostly *Aspergillus flavus* and *Aspergillus parasiticus* are found in feed ingredients such as peanuts, maize, DORB, bajra etc. as a contaminant. The aim of the study was to examine the level of total aflatoxins present in the raw materials of feed.

**Results:** Approx 60% samples of various raw materials i.e. peanuts, maize, DORB, bajra etc. were found to complying to BIS guidelines whereas 32% of Maize samples and 8% of DORB samples had higher level of aflatoxin. To avoid the problem, it was advise to use quality raw material and should be stored in moisture free, airy and ambient environment conditions.

**1.1.5. Project Title:** Quality assurance of medicinal plants.

**Objective:** Evaluation of quality standards to ensure the supply of premium quality material..

**Duration:** 12 months

The herbal medicines have become popular to combat COVID19. They have also been used to improve overall health of livestock and human beings. ARF took initiative in establishing towards testing the quality standards of herbal raw materials to ensure the supply of premium quality material to various stakeholders.

**Results:** Total 185 samples of herbs such as *Azadirachta indica*, *Citrullus colocynthis*, *Achyranthes aspera*, *Tinospora cordifolia*, *Mucuna pruriens*, *Andrographis paniculata*, *Withaniasomnifera*, *Solanum nigrum*, *Ocimum sanctum*,



Quality assurance of medicinal plants

*Piper longum, Asparagus racemosus, Boerhavia diffusa, Phyllanthus niruri and others were analyzed as per API specification and for active ingredients using HPLC. We found 55% of the samples were found to be complying to standard quality specifications, 45% of the samples did not comply with the standards with respect to parameters water soluble extractives, alcohol soluble extractives and acid insoluble ash.*

**1.1.6. Project Title:** Analysis of raw material on quality parameters for cattle and poultry feed.

**Objective:** To analyse the quality parameters of different raw materials used in finished formulations in cattle and poultry feed.

**Duration:** 12 months

Animal feeds and their quality are important for overall health and production of livestock. Various raw materials were tested using the latest equipment ie NIR.



Analysis of feedstuffs using NIR

**Results:** Out of 1062 samples of raw materials such as Rice polish, MDOC, Soya DOC, GNE, Maize, DORB etc. 94% samples were found to comply BIS specifications. 6% of the samples did not comply to BIS standard.

## 2.0 Agriculture – Research and Projects

### 2.1. Raising hydroponics Paddy nursery and its mechanical transplantation

**Project title:** Raising hydroponics Paddy nursery and its mechanical transplantation.

**Duration:** 5 months (June 2020 – Oct 2020)

#### Objectives:

1. To demonstrate the hydroponics technology for raising Paddy nursery & facilitate its mechanical transplantation.
2. To evaluate adoption percentage of farmers.
3. To study the effect on growth and yield parameters.

**Location-**Villages of Sonipat district

**Variety-Pusa Basmati -1121**

**Area-**101 acres

**Design-**Comparative performance Design.

Hydroponics Paddy nursery was raised in Ayurvet ProGreen Hydroponics machine for 7days. The nursery was kept under shade for 2 days for acclimatization. The nursery was then transported to the farmer's field and was then transplanted using a mechanical transplanter.

Eighty four farmers from different villages of Sonipat district adopted the technology making a total farm area of 101 acres. Data for growth, yield and survival parameters was recorded.

#### Outcome-

- In kharif 2020, 84 farmers adopted the technology covering a total of 101 acres .
- The rate of survival of hydroponics Paddy nursery after transplantation was 85%.
- The hydroponics technology has significant effect

**Observations -**

Parameters	Hydroponics (Value±S.D.)	Conventional (Value±S.D.)	Standard*
Average Plant Height (cm)	98.8±5.2	97±0.2	110-120
Average Number of Tillers	26±3	18±2	18-20
Average Plant Thickness (mm)	4.4±0.2	3.5±0.2	3.0-3.5
Average Effective number of Tillers/sq m	373±18	300±11	350-400
Average 1000 seed wt (g)	24.9±2.4	22±1.4	28
Average Number of grains per panicle	65±4	58±3	60
Average Yield (qt/acre)	15.8±1.6	15.4±1.2	16

on the growth and yield parameters.

- Highest yield in Hydroponics field was 21q/year.
- Average yield per acre in conventional system was 15.4q. However in hydroponics system average yield per acre was 15.8q/acre. The reason for higher yield is higher number of tillers, better 1000 seed weight (29.0g) and higher number of grains per sq m.
- Technology offered an additional yield of 0.5-2 q/acre, fetching an additional income of Rs. 3000-5000 per acre (MSP@2800/q).
- Farmers observed that there was 25% less weed problem than conventional.
- Farmers were convinced with the package of Hydroponics Paddy Nursery and mechanical



Transplanting of hydroponics paddy nursery

transplantation because it provides healthy nursery and solves the problem of labour shortage.

**2.2- Wheat Research****A. On-Field validation of High Yielding Wheat Varieties –DBW-187 and DBW-222**

**Project Title**-Validation of performance of high yielding Wheat varieties DBW-187 and DBW-222 and its comparison with standard Wheat varieties HD-2967 & HD-3086.

**Duration** –Nov 20 – April 21

**Objective –**

- Evaluate the performance of high yielding Wheat varieties in the environmental conditions of Sonipat.
- To compare the agronomic performance of high yielding Wheat varieties with check varieties HD 2967 & HD-3086.
- Record the disease infestation between the selected varieties.

**Experimental details**

**Experimental Location**-ARF, Chidana

**Varieties**-V1 :DBW 187, V2 DBW 222, V3 HD 2967, V4 HD 3086 (Check/control varieties)

**Experimental Area**-1000sq m

**Replication**- 4

**No. of Plots**-16 (Plot Size-62.5 Sq meter)

**Treatments**-16 ( 4 Varieties X 4 Treatments )

**Experimental design**-Randomized Block Design

**Date of Sowing**- 25.11.2020 (All varieties)

**Date of Harvesting**- 09.04.2021 (All varieties)

DBW-187 & DBW-222 were released recently by Indian Institute of Wheat and Barley Research, Karnal. These varieties have resistance to different diseases like yellow rust, brown rust, black rust etc. These varieties offers yield per acre in the range 24-27q/acre. We have evaluated the comparative performance of these high yielding varieties and have compared the same with check varieties.

**Observations–****Growth Parameters :**

Variety	Crop age (Days)	Average Plant Height(cm)	Average Spike length (cm)	Average Number of Spikelets per spike	Lodging (%)
DBW-187	135	91.4±5.2	8±0.4	15.3±1.5	0
DBW-222	135	93±3	8±0	16±1	0
HD-2967	135	94.8±3.3	9±0.8	18±2.5	0
HD-3086	135	86.5±4.9	7.9±1.1	14.2±0.9	0

**Yield Parameters :**

Variety	Days to 80% maturity	Effective number of tillers per square meter	Average No. of grains per spike (5 randomly selected)	1000 seed wt.(g)	Biomass per square meter(g)	Average Yield per Square meter(g)	Calculated Yield /acre (kg)
DBW-187	125	325±13.9	51.50±4	43.94±1.5	1490±150	644.5±52.9	2578±212
DBW-222	127	322±13	60±4	43±2	1505±81	659±32	2635±127
HD-2967	126	307±11	59±3.7	42±1.4	1490±104	641.5±35	2566±140
HD-3086	125	316±10	47.8±7	42.1±1.6	1565±104	627.5±52.6	2510±210



Experimental Wheat field at maturity phase (125 days)



Wheat manual harvesting at 135 days

**Outcome –**

- The performance of all the varieties was good. Significant difference in most of the growth and yield parameters were observed between the high yielding and check varieties.
- According to the results obtained these varieties i.e., DBW-187 and DBW-222 were superior to the other check wheat varieties like HD-2967 and HD 3086.
- The crop yield was highest in DBW187 followed by DBW-222, HD-2967 and HD-3086 respectively.

**B. Evaluation of gradual reduction of Urea in Wheat crop**

**Project title–**Study of effect of gradual reduction in Urea on growth & yield parameters of Wheat crop under the environmental conditions of Sonipat (Haryana).

**Duration–**6 Months (Nov 20- May 21)

**Objectives-**

- To study the effect of gradual reduction in Urea in Wheat crop.
- To compensate the urea reduction through Vermicompost.
- To evaluate the effect of the treatment on growth & yield parameters.
- To evaluate the effect of addition of Vermicompost on soil Organic carbon

**Technical Program–**

**Experimental Location-** ARF, Chidana

**Variety-** DBW-187

**Experimental Area-** 1 acre

**No. of Plots-** 4

**Plot Size-** 0.25 acre

**Treatments-** 4

The dosage of Urea and Vermicompost is selected as per the Haryana conditions i.e., 200kg of Urea for 1 acre and 2000kg of Vermicompost for 1 acre

**Treatment 1-** 100% Urea + Vermicompost – 50kg Urea



+ 500kg Vermicompost- Control

**Treatment 2**-75% Urea + Vermicompost -37.5Kg

Urea+ 625kg Vermicompost

**Treatment 3**-50% Urea + Vermicompost- 25kg Urea+

750kg Vermicompost

**Treatment 4**-25% Urea + Vermicompost– 12.5 kg Urea

+ 825kg Vermicompost

**Experimental design**- Paired comparison design

**Results :**

Urea%	Effective number of tillers per square meter	No. of grains per spike (5 randomly selected)	1000 seed wt.(g)	Biomass per square meter(g)	Yield per Square meter(g)	Calculated Yield /acre (kg)
100	338±22	44±4	40.42	1543±18.4	652±2.8	2608
75	336±11	60±2	42.26	1330±42.4	646±11.3	2584
50	317±9	55±2	42.44	1525±55.2	615±21.2	2460
25	309±16	57±8	41.51	1410±50.9	606±48.1	2424



Sample collection from experiment field

recorded as 42.4g in T3, 42.2g in T2, 41.5g in T4 and 40g in T1. There was significant difference between the treatments.

- Organic Carbon % (OC% after harvesting )- In T1- OC% have decreased from 0.55 to 0.50. In T2- OC% have increased from 0.53 to 0.60. In T3- OC% have increased from 0.57 to 0.59. In T4-OC% have Decreased from 0.56 to 0.54 .
- With reference to OC % better results were observed in T2 where we have 37.5 kg of Urea (instead of 50 kg ) and have added 625 kg of Vermicompost. 25% lesser chemical fertilizer was used .



Experimental Wheat field at maturity phase (125 days)

**Outcome-**

- The per acre yield was significantly higher in T1 (2608 kg/acre). The yield per acre was recorded as 2584kg/ acre in T2, 2460kg/acre in T3 and 2424kg/acre in T4. There was significant difference between the 4 treatments.
- 50% lodging was recorded in T1, 30% in T2 , 40 % in T3 and only 5% in T4. In plot with T4 maximum amount of vermicompost was added which may have increased the strength and water holding capacity of the soil hence reducing lodging.
- The yield parameter of 1000 seed weight was

### 3.0 Animal Health

#### 3.1 Rural Skill and Entrepreneurship Development

To create livelihood opportunities in rural India, ARF has trained 25 rural youths in AI and dairy farming for three months. Under this programme, youths were trained in



Training of rural youths at ARF Chidana



Training of rural youths at ARF Chidana

both theoretical and practical aspects. These youths were trained in the area of animal health & hygiene, animal product technology, animal nutrition, livestock production and management, first aid simple & minor treatment, care and management of new born calf & pregnant animals, animal health & hygiene, animal reproduction technology and artificial insemination.

After training, 19 out of 25 youths are working as AI and animal health worker. Some of them are also running their own dairy farm. This program was funded by NABARD.

### 3.2 Animal Health and Breed Improvement:

ARF team is dedicated to provide animal health services through its Animal Health Centre. This year, the total 581 cases of Anestrus, Mastitis, Deworming & and others were treated through 27 animal health camps in different villages.

Total 1179 Artificial Insemination in Cows and Buffaloes were performed. Total Artificial Insemination in Cows



AI service in rural areas by team ARF

were 497 and the 682 Buffaloes. This lead to produce genetically superior quality calves and improved milk production. Artificial insemination services of the ARF helped in ensuring the successful conception rate of approx 55%.

S.No.	Case	No. of Cases	Percentage (%)
1.	Repeat breeding/Anoestrus	212	36%
2.	Mastitis	88	15%
3.	Diarrhea/Deworming/Indigestion	174	36%
4.	Others	107	19%
Total		581	100%

### 3.3 Waste to Wealth Management

Dairy animals are reared on large scale in rural areas. At village level, people only know to make dung cake of excreta and there is no proper management to handle dung properly. As a result, the excreta accumulates and releases gases, which effect negatively on environment. Hence, ARF explored the solution of this problem and trained farmers to manage the dung and yet earn income form same.

#### 1. Making cow dung logs

A machine was explored under this initiative, which helped in making the cow dung into logs. After drying these logs under sunlight, they become like a wood logs. These were easily used as a substitute of wood. ARF has trained 78 farmers for making dung log on this machine.



Preparation of logs from cow dung

**2. Vermicomposting**—Ayurved Research Foundation provided training of waste management through vermicomposting. Vermi-compost, is a good source of nutrients for crop and improves soil health and water holding capacity. We produced approx. 14 tons vermicompost from cow dung. It was demonstrated to farmers for creating awareness and adoption of the technology.



Demonstration of vermicomposting units & its benefits

### 3. Biogas

Under its 5F program, ARF has been promoting use of Biogas for solving fuel requirements in rural areas. It helps in converting waste into energy. ARF has demonstrated the Biogas technology and its application through 6CuM and 85CuM biogas plant to the farmers for awareness and adoption.



Demonstration of biogas technology at ARF

## 4.0. Rural Development and Organic Farming

### 4.1. Farmer Producer Organizations (FPO)

**Title:** Formation and promotion of farmer producer

organizations

**Duration:** Three years (II<sup>nd</sup> year)

**Agency:** NABARD

**Area covered:** 30 villages of Sonipat & Panipat

Under NABARD sponsored scheme, Ayurved Research Foundation as POPI (Producer Organization Promoting Institution) has been promoting 6 FPOs on organic farming, milk processing, vegetables, mustard oil in district Sonipat and Panipat.

Name of FPO	Address	Year of Registration	Scope of work
Pragatisheel Organic Producer Co. Ltd.	Didwari, Panipat	2019	Organic Rice, wheat and Vermicompost production
Young Milk Producer Co. Ltd.	Chhichrana, Panipat	2019	Vegetables, Mustard oil and Honey production
Gangana Organic Producer Co. Ltd.	Gangana, Sonipat	2019	Vegetables, wheat and paddy production (Organically); Input shop (Fertilizer, Pesticides and Seeds); Market committee license
Balaji Organic Producer Co. Ltd.	Kasandi, Sonipat	2019	Market committee license; Organic wheat & rice production; Custom Hiring Centre
Chhirsagar Milk Producer Co. Ltd.	Barota, Sonipat	2019	Milk
Sarva Vikas Producer Co. Ltd.	Putthi, Sonipat	2019	Vegetables Production; Custom Hiring Centre

### Outcome of Project:

- 6 FPO registered under companies act 1956–A.
- Training of CEOs and Directors of FPOs by experts and



Mr. Malkeet Singh GM NABARD with FPO representatives in Panipat



Training of CEOs & Directors of FPOs at NIAM, Jaipur

specialized institutions to run the business of company.

- Farmers getting direct benefits from agriculture, horticulture and other departments.
- FPOs received market committee license as commission agent for procurement of farmer's crop.
- Getting agriculture input material with low price to the farmer members.
- Growing chemical free produce.
- Value adding and branding of farmer produce.
- FPOs directly connected with urban consumers and supply pure and fresh products and also promoting farmers products through trade fairs and Kisan Gosthi.
- Opened custom hiring centers for instruments which are used by farmers at low cost. (Mulcher, Chopper, Rotavator, Cultivator and Happy seed drill etc.)
- Farmer working likes minded company i.e. TATA, Reliance etc.

#### 4.2. Capacity Building for Adoption of Technology (CAT)

**Title:** To enhance the capacity of progressive farmer with the knowledge of new technology and its implementation for hike in productivity.

**Duration:** Three days

**Agency:** NABARD

**Number of beneficiaries:** 100 Farmers (4 batch of 25 farmers each)

Technological up gradation and innovation has been the hall mark of Indian agriculture. With a view to



CAT, Sonapat

widen the horizon of new agro-technology, it was felt that farmers should be motivated to adopt new technology & expose them to innovative projects being implemented by various agencies in different parts of the country. ARF in collaboration with NABARD successfully conducted 4 CAT exposure visit of 25 farmers in each visit from district Sonapat & Panipat, Haryana and distict G.B.Nagar & Baghat, U.P.

Following institutes were visited by farmer groups under CAT visits:

- a) Indian Institute of Farming System Research (IIFSR), Modipuram, Meerut,
- b) Basmati Export Development Foundation (BEDF), Modipuram, Meerut,
- c) Central Potato Research Institute (CPRI), Modipuram, Meerut
- d) Sardar Vallabh Bhai Patel University of Agriculture & Technology (SVPUAT), Modipram Meerut,
- e) National Center of Organic Farming (NCOF),



CAT- Gautam Buddha Nagar



CAT Panipat

Ghaziabad, Uttar Pradesh,

f) Indian Agriculture Research Institute (IARI)-PUSA, New Delhi,

g) ICAR-Directorate of Wheat Research(DWR), Karnal, Haryana,

h) National Dairy Research Institute (NDRI), Karnal, Haryana,

i) Chaudhary Charan Singh Haryana Agriculture University (CCSHAU), Hisar, Haryana,

j) Lala Lajpat Rai University of veterinary and Animal Sciences University ( LUVAS) , Hisar, Haryana and

k) Ayurved Research Foundation , Sonapat Haryana.

#### Outcome

- Farmers got exposures and trainings for adopted new technologies in agriculture and livestock sector.
- Farmers also got introduced to research & extension institutions in agriculture and livestock.
- Farmers resolved their real time problems faced



CAT Baghpat

during agriculture and livestock practice from subject experts.

#### 4.3. Organic Farming:

**Title:** Demonstration of benefits of organic farming over conventional farming towards safe food, better soil and human health with farmers of Kisan Clubs and farmer Producer Organizations in Sonipat district.

**Duration:** Three years (II<sup>nd</sup> year)

**Agency:** NABARD

**Area covered:** 20 Acres (in 4 villages of Sonipat)

Organic farming is recognized as the best-known alternative to the conventional agriculture which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides etc. ARF with support of NABARD successfully demonstrated the benefits of organic farming over conventional farming. The project was successfully executed in 20 acres of land in 4 villages of district Sonipat, Haryana.

#### Outcome:

- Improvement in soil health and water holding capacity.
- Quality and organic food production.
- Reduction in input cost and increased income.
- Organic fields of farmers are certified by 'National Program for Organic Production' (NPOP) based on year of organic practice.
- Increased awareness about harmful effects of chemical fertilizers and pesticides among the farmers.



Mr. R.K. Johri DDM NABARD Sonipat-evaluation of organic farming project

#### 4.4. Self Help Group:

**Title:** Women empowerment through Self Help Group

**Duration:** Four years (IV<sup>th</sup> year)

**Agency:** NABARD

**Number of beneficiaries:** 500 women in 50 Self Help Groups.

ARF has formed 50 SHG –Self Help Group in collaboration with NABARD for saving and credit linkage with nationalized bank and to empower women of rural areas of district Panipat. Regular meetings were conducted among women for capacity building and development of their entrepreneurial skills to make them aware about new initiatives and policies of Government of India.



SHG Members promoting their produce in Vocal for Local fair in Panipat

#### Outcome:

- 1) Women have started their small business in areas of dairy, retail shop, blanket and doormat preparation etc.
- 2) Empowering women through developing leadership abilities among poor and the needy people.
- 3) It helped in increasing school enrolments, improving nutrition and health.
- 4) Women took loans from their collective savings in times of emergency or financial scarcity, important life events or to purchase assets.

#### 4.5. Sanjeevani Project

**Title:** Sanjeevani

**Duration:** Five years (III<sup>rd</sup> year)

**Agency:** SATHI & Mobius Foundation



Farmers participating in Sanjeevani Project

**Area covered:** 20 villages of Sonipat & Panipat.

Ayurved Research Foundation transplanted the plants with support of Mobius Foundation in district Sonipat and Panipat villages. Under this program we transplanted five thousand plants in 20 villages of both district along with 15 schools, Farmers Producer Organization (FPO), Self Help Group (SHG) and Farmer Clubs member.

#### 4.7. COVID-19 Activities

Ayurved Research Foundation in pandemic situation (Lockdown) shared the relief to poor peoples, who were living in rural areas of district Sonipat and Panipat. Under this initiative, ARF sanitized 22 villages of both districts. ARF also distributed daily need goods to one thousand



Sanitization of village to fight COVID-19

poor peoples who are living in rural are of both districts.

## 5.0. Medicinal Plants

Medicinal plants considered as rich resources of botanical ingredients, which are; use in drug development either pharmacopoeia, non- pharmacopoeia or synthetic drugs. A part from that, these plants play a critical role in the development of human cultures around the whole world. According to WHO 80% of the world population depends upon the traditional medicine for their health needs. India is one of the twelve-mega biodiversity hot spot regions of the world. One fifth of all plants found in India used for medicinal purpose.



Ashwagandha field in Jhalawar Rajasthan at vegetative stage

Medicinal plants play an important role in supporting healthcare system in India. About 8000 species of medicinal plants are in current use by local communities all over India. About 90% of the country's medicinal plants found in forest habitats. Only 10% of the medicinal plants are distributed among other landscape elements like open grasslands, agricultural pastures and in and around fresh water bodies, etc.

With growing demand of medicinal plants by Indian herbal industry, there is continuous increase in pressure to forest and its biodiversity. It led towards challenging condition for procurement of raw material in current scenario. In order to create a sustainable supply base of medicinal plants, Ayurved Research Foundation continued its journey through structured

conservation programme for a variety of medicinal plants.

Team successfully cultivated Ashwagandha, Tulsi, Kalmegh and Long pepper in the states of MP, UP, Rajasthan, Bihar, Chhattisgarh and Maharashtra.

The programme had following objectives:

1. Identification of best geographical location for cultivation of targeted species of herbs for quality produce.
2. Skill development of farmers through on farm training during cultivation.
3. Develop and produce quality seeds & planting material for multiplication.

During cultivation, we provided regular guidance, training along with good quality planting material. It helped them in adopting the rotation of cultivation along with traditional crop cultivation.

### Project wise progress of the year -

#### A. Ashwagandha (*Withania somnifera*):

##### Projects at M.P & Rajasthan

##### Objective:

- a) To identify best geographical location for the cultivation as well as to produce quality planting materials

**Crop duration-** 7 to 8 Months (Aug.20 to March.21)

##### Madhya Pradesh:



Ashwagandha field in Neemach M.P at flowering stage

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	250	230	92
Withanolide (%)	2.5	2.85	114

**Rajasthan:**

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	250	200	80
Withanolide (%)	2.5	2.4	96

**Conclusion:**

- The cultivation projects succeeded in producing good quality Ashwagandha in MP and Rajasthan.
- Improved active constituents by 14 % in M.P, while in Rajasthan it decreased by 4%.
- Planting material – Jahwar 20
- Best location for the cultivation is MP.

**B. Tulsi (Ocimum sanctum):****Projects at U.P. & Bihar****Objective:**

- To identify best geographical location for the cultivation as well as to produce quality planting materials.

**Crop duration (1 Cuttings)-July-20 to March-21****Uttar Pradesh :**

Tulsi field in Gorakhpur U.P at harvesting stage

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	600	540	90
Ursolic acid (%)	0.15	0.18	120

**Bihar:**

Tulsi field in Begusarai, Bihar at vegetative stage

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	600	520	86
Ursolic acid (%)	0.15	0.2	133

**Conclusion:**

- The cultivation projects succeeded in producing good quality Tulsi in UP and Bihar.
- Harvesting 8 to 10 days before initiation of flowering, having highest content of Ursolic acid in leaves.
- Improved active constituents by 20 % in U.P while in Bihar, it was better by 33%.
- The biomass production less by 10% in UP and 14 % in Bihar with compare to target.
- Planting material – Rama Tulsi local variety (origin from Gorakhpur).
- Best location for the cultivation is UP as the biomass production is more.

**C. Kalmegh (Andrographis paniculata):****Projects at M.P and Chhattisgarh**



**Objectives:**

a) To identify best geographical location for the cultivation as well as to produce quality planting materials

**Crop duration-** 6 months (June 19 to November 19)

**Madhya Pradesh:**

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	800	750	94
Andrographolide (%)	1.5	2.0	133



Kalmegh field in Jabalpur M.P at harvesting stage

**Chhattisgarh**

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	800	700	88
Andrographolide (%)	1.5	2.5	166



Kalmegh field in Ambikapur, Chhattisgarh at harvesting stage

**Conclusion:**

a) The cultivation projects succeeded in producing good quality kalmegh in MP and Chhattisgarh.

b) Harvesting before the initiation of flowering, having higher active content.

c) Improved active constituents by 33 % in M.P while in Chhattisgarh, it was better by 66%.

d) Planting material – Local verity (origin from Mansour, M.P).

e) Best location for the cultivation is MP as the biomass production is more.

**D. Pipali (Long pepper):****Projects at Maharashtra****Objective:**

a) To find out suitability of Pipali cultivation in Maharashtra

**Crop duration-**12-14 months (June 18 to Oct.21)

Particulars	Target	Actual	% Achieved
Area (Acres)	1	1	100
Yield (Kg/Acre)	700	710	102
Andrographolide (%)	1	0.60	60

**Conclusion:**

- The cultivation projects succeeded in producing good quality long pepper in Maharashtra



Long pepper field in Amravati, MH at vegetative stage

- Production of fruits is 2 % above our target
- Active content in the fruits are decrease by 40% as compared with target.
- Exploring the cause for decreasing in Piperine %

## 2. Net house & demonstration garden:

### 2.1. Net house

A well-maintained NET House developed at the project site, Chidana with the fully automated sprinkler system. The main objective of this net house is to produce large-scale quality planting material for farmers, demonstration for other interested groups. It will also create awareness about conservation and common usage of medicinal plants among rural and urban population.

Total 20000 seedlings of some important high value medicinal plant surrounded by the 12 species, in the nursery and in net house were generated at Chidana (Haryana).

#### List of medicinal plants:

S. No	Botanical name	Common name	No. of Saplings
1	<i>Bacopa moinneri</i>	Brahmi	5000
2	<i>Tinospora cordifolia</i>	Giloy	2000
3	<i>Withania sominifera</i>	Ashwagandha	100
4	<i>Ocimum sanctum</i>	Tulsi	900
5	<i>Asparagus racemosus</i>	Satawar	100
6	<i>Glycyrrhiza glabra</i>	Mulethi	4000
7	<i>Andrographis paniculata</i>	Kalmegh	100
8	<i>Centella asiatica</i>	Mandookparni	5000
9	<i>Plumbago zeylanica</i>	Chitraka	100
10	<i>Desmodium gangeticum</i>	Shalparni	500
11	<i>Acorus calmus</i>	Vacha	2000
12	<i>Moringa oleifera</i>	Sahajana	200
	<b>Total</b>		<b>20000</b>

#### a. Demonstration garden:

- More than 500 Sq meter area has been covered by the medicinal plants
- Some important high value medicinal plant like Aloe-



Inner view of green house

vera, Sahajan, Tulsi, Chitrak etc transplanted in this garden.

### Plan for 2021-22

- Production of quality herbs and planting materials through herbal farming from different agro climatic zones of India by using Good Agricultural Practices for selected herbs.
- Skill development of 1000 farmers
- Develop a value chain and market linkage for farmers.

### New initiatives (Year 2021-22):

- To analyze the herbs & share the analytical reports and source of origin.
- To undertake project on organic farming & certification.
- Standardization of herbs–wild sourced and cultivated.
- Collect samples of various herbs from various place and analysis there report.

## 6.0. Human Resource Development

Ayurved Research Foundation is a team of strong people who are passionate & committed towards sustainable development. Our employees bring an enormous amount of positive energy with them and have greater focus at work and never hesitate to go the extra mile.

We have always believed in leveraging people's passion to achieve organization objectives. As on March 31st, 2021, a strong team of 26 committed employees aligned to the laid objectives. They are indeed a critical asset to our organization to deliver sustainable results year after year.

### 6.1. Welcome: New Family Members

S.No	Employee Name	Designation	Date of Joining
1	Praveen Kumar Shukla	Asst. Manager-Project & Business Development	02/11/2020
2	Yashu Gupta	Sr. Executive Marketing	02/12/2020
3	Abdul Kadir	Asst. Project Officer-Rural Development	01/01/2021
4	Suruchi Malik	Microbiologist	20/01/2021
5	Anil Rathee	Sr. Analyst (Wet Chemistry & Instrumentation)	15/03/2021
6	Kirti Sharma	Trainee- R&D	12/10/2021
7	Jasmer	Field Supervisor	08/01/2021

### 6.2. Human Capital Development

HR dept. offered a wide range of training opportunities throughout the year in order to build on the professional competencies and conducted exclusive training sessions benefitting employees which were facilitated by various internal & external trainers.

Human Capital Development Initiatives taken in FY 2020-21:

S.NO.	Training Topic	Training Type	Date
1.	Fire Safety Training & Drill	External	25-01-2021
2.	Webinar of HR Policies on Statutory Compliances	In-house	23-02-2021

### 6.3. Initiatives Enriching the Employee Experience & Engagement

- Virtual Diwali Milan
- Long Service Awards
- International Women's Day Celebration
- Holi & Birthdays Celebration

## 7.0. Other Initiatives

### 7.1) IAEC Meeting and Inspection

Successfully conducted the Institutional Animal Ethic Committee–Animal house facility inspection on 4th March, 2021. inspection was conducted in the presence of Dr. Shakir Ali–Main nominee CPCSEA and Dr Deepti Rai.



Animal house facility inspection by IAEC members

Institutional Animal Ethics Committee Meeting was held on 31st March, 2021 through Online-Zoom Mode. Following were the attendees -

1. Dr. Anup Kalra – Chairman, IAEC
2. Prof. Shakir Ali – Main Nominee, CPCSEA
3. Dr. Nagendra Yadav-Socially Aware Member, CPCSEA
4. Dr. Deepti Rai – Member Secretary, IAEC ( ARF)
5. Dr. Raghendra Kaurav – Veterinarian, ARF
6. Dr. Hari Singh Lochab- Scientist from Different Domain

The members discussed the activities of ARF and the initiatives taken by ARF in order to strengthen animal health as a whole.

### 7.2. Serving Humanity:

ARF joined hands with MOBIUS Foundation to serve the humanity and carried out sanitization in the 22 villages of districts Panipat and Sonipat, Haryana, covering the population of 1.6 Lakh and distributed 861



Distribution of food packets during lockdown

food packets to needy and migrant labours, thereby benefitting more than 3750 people.

### 7.3. Inauguration of Soil Health Card project :

Soil Health Card Project was successfully inaugurated at ARF R&D Centre, Chidana in the presence of Govt. of Haryana officials and farmers from Baroda Mor Village, Sonapat Distt.



Inauguration program of soil health card project

### 7.4. Visit of DC & SP of Sonapat to ARF R&D Centre:

Mr. Shyam Lal Punia, Deputy Commissioner, Sonapat and Mr. Jashan Deep Singh Randhawa, Superintendent of Police, Sonapat, visited ARF, Chidana to get update on the services being rendered to farmers and society, state of the art R&D facility we have and our interventions in hydroponics, agriculture, animal health care and breed improvement etc.



DC and SP, Sonapat, taking updates on ARF activities

### 7.5. Visit of CGM, NABARD (National Bank for Agriculture and Rural Development): Shri Rajeev Mahajan-CGM, NABARD (National Bank for Agriculture and Rural Development) visited at ARF- R&D Centre on Date 30th May 2020 to explore the potential researchable areas under collaboration with organization.

He appreciated the work being done by ARF for the benefit of farmers, livestock, soil and water apart from other researchable activities. Work done in collaboration with NABARD towards crop residue management (Stubble Burning) was appreciated.



CGM – NABARD at ARF, Chidana

### 7.6. Certificate Distribution Programme under CAT Project

Under Capacity Building and Adaptation Training Project at Baghpat (U.P), certificate distribution programme was organized. Ms. Sikha, General Manager, NABARD-UP was chief Guest of the

programme. She appreciated the initiatives of ARF and assured to provide projects for welfare of farmers in Baghpat, U.P.



Ms. Sikha, GM, NABARD (UP) distributing certificates to CAT participants

### 7.7. 3000 Soil Health Card Distribution

Card distribution ceremony was held in the village on 9th March 2021, where cards were distributed to farmers in the presence of Haryana 9 Govt officials namely Dr. Anil Sehrawat ( Deputy Director – Agriculture), Dr. Rajender Mehra ( SDO) Dr. Devraj Dalal (STO) and others.

Dr. Sehrawat laid the stress on importance of timely soil testing, use of vermicompost to increase the OC ( Organic Content) of soil for better absorption of nutrients and high productivity.



Distribution of soil health cards to the farmers

### 7.8. Visit of B Tech Biotechnology Students at ARF, Chidana

As a part of industrial visit 31 (B.Tech, Biotech) students and 2 faculty members of Sardar Vallabh Bhai Patel University of Agriculture and Technology visited ARF,



Students understanding vermicompost technology during visit

Chidana on 10th March 2021 to get updated on various researchable and extension activities being carried out at its state of the art R&D Centre, Animal Health Centre, Hydroponics, Medicinal plants and Agriculture fields .

### 7.9. Orientation Programme of students from Delhi Pharmaceutical Sciences & Research University (DPSRU), New Delhi.

Dr. Anil Kanaujia, Head–R&D, was invited as Chief Guest for the Student Orientation Programme of D. Pharm. 1st year at Delhi Pharmaceutical Sciences & Research University on Monday, 4th January, 2021. Dr. Kanaujia stressed that current research focus should be on the role of herbals in current pandemic and natural product chemistry based drug discovery, students need to take care of quality, safety and efficacy of drug produced.

### 7.10. ARF Webinar Series:

#### A) Soil Health Card and Farm Productivity

Under ARF's One Health Webinar Series Programme, farmers of the district Sonipat and Panipat were

A banner for the ARF Webinar Series. At the top, it says '1 HEALTH' with a logo. Below that, 'ARF WEBINAR SERIES' and 'SOIL HEALTH CARD &amp; FARM PRODUCTIVITY'. There are three speakers listed: Dr. Anup Kalra (CEO, ARF), Dr. Devraj Dalal (Soil Health Expert, Govt. of Haryana), and Dr. Anil Kanaujia (Head-R&amp;D Centre, ARF). The date is 'Friday, 15th January 2021' and the time is 'Time: 3.00-4.00 PM'. At the bottom, it says 'TRADITIONAL KNOWLEDGE MODERN RESEARCH'. There are also some logos and decorative elements.

connected digitally on 15th January 2021 and informed about the benefit of Soil Health Card scheme of Govt. of India. Dr. Devraj Dalal, Soil Health Expert, Govt. of Haryana was the key speakers. Number of farmers joined and interacted with the experts to understand the current challenges and possible solutions for improving soil health and farm productivity.

### B) Cultivated Quality Herbs for Value Creation

ARF successfully organized the webinar on importance of quality cultivated herbs for value creation. The experts from the industry and cultivators joined the webinar. It was agreed in principal that the quality of the herbs is an important area which needs to be pursued for improving the quality of the products.



### C) Webinar on AMR Mitigation for food safety

National Academy of Veterinary Sciences (NAVS), India organized a national webinar on "AMR-Mitigation for food safety" under the theme of One Health in collaboration with Ayurvet Research Foundation (ARF) and Department of Animal Husbandry and Dairying



(DAHD) of Government of India on 30.10.2020. The patrons of the webinar were Dr Praveen Malik, Animal Husbandry Commissioner (AHC), DAHD, Gol; Maj. Gen. Dr Shri Kant Sharma, President, NAVS, India; Dr R. K. Mittal, Vice Chancellor, SVPUAT, Meerut; Dr G. K. Singh, Vice Chancellor, DUVASU, Mathura and Mr. M.J. Saxena, Managing Trustee, ARF, India.

### D) International Workshop on AMR

A International Workshop on AntiMicrobial Resistance was organized at Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut. 500+ scientists from national and international organizations participated in the workshop. Managing Trustee of ARF S. M.J.Saxena was Guest of Honor of the Workshop. He highlighted the challenge to healthcare due to AMR in future and need of hour to take important steps to control AMR.



International webinar on AMR at SVPUAT, Meerut

### 7.11) Impact Assessment of ARF Initiatives by Confederation of Indian Industry (CII)



Interaction with project beneficiaries during impact assessment



Interaction with project beneficiaries during impact assessment

What is not measured cannot be managed. To measure the impact created by ARF through its Various projects, ARF has collaborated with CII to do the impact assessment of its key projects. CII has visited Ayurved Research Foundation field Location to meet its project beneficiaries to do impact assessment of its projects.

### 8.0. Research Publications:

- a. Antimicrobial Resistance: An emerging threat for One Health– Solutions and Way Forward, International Journal of Chemical Studies, 2020; 8(3): 2613-2619. Abha Saxena and Deepti Rai.
- b. Bacterial Diseases of Crops: Epidemiology, Symptoms and Management, International journal of Current Microbiology and Applied sciences, 2020, 9(6): 1483-1499. Abha Saxena, Deepti Rai, Anup Kalra and Mohan Ji Saxena.
- c. Aeroponics for raising Horticulture crop nursery in Ayurved's Pro Green Hydroponics system, Nursery Today, 2020, 7(3), 70-76. Abha Saxena.
- d. Ayurved Pro Green Hydroponics technology for green biomass production and raising nurseries: A solution for climate change, 2020, Abstract repository of ICAR- Central institute of Subtropical Horticulture, Lucknow, Abha Saxena, Deepti Rai and Anup Kalra
- e. Application of Aeroponics for raising Nursery of Horticultural crops through Ayurved Pro Green Hydroponics System Souvenir of National Seminar on Smart Horticulture, NAHEP, ICAR. Abha Saxena, Deepti Rai and Anup Kalra, 2020

- f. COVID 19 Pandemic, Mechanism of Pathogenesis, Preventions and Possible Cures to Save Humanity: A Study, Samanwita Banerjee, Jainendra Gupta, Anil Kanaujia. Journal of Infertility and Reproductive Biology, 2020, 8 (2), 18-21.
- g. Safety Evaluation of Poultry Feed using Immunosorbent Assay Technique, Samanwita Banerjee and Anil Kanaujia. International Journal of Current Microbiology and Applied Sciences, 2020, 9 (5), 3531-3535.
- h. Methods for the detection of antibiotics and its residues in edible animal products, Samanwita Banerjee, Anil Kanaujia. International Journal of Creative Research Thoughts, 2020, 8(5), 2573-2577.
- i. CQI–For Grading Quality of Composts, Anil Kanaujia, Samanwita Banerjee, Jainendra Gupta, Sarvesh Upadhyay. International Journal of Advances in Agricultural Science and Technology, 2021, 8(1), 45-51.
- j. Soil health index–an initiative of ARF for the farmers of district Sonapat, Haryana, Anil Kanaujia, Samanwita Banerjee, Deepti, Rai. International Journal of Global Science Research, 2020, 7(2), 1376-1381.
- k. Saxena A and Rai D; (2020) Antimicrobial Resistance :An emerging threat for One Health– Solutions and Way Forward. International Journal of Chemical Studies , 8(3):2613-2619.
- l. Saxena A ; Rai D, Kalra A, Saxena MJ; (2020) Bacterial Diseases of Crops: Epidemiology, Symptoms and Management International journal of Current Microbiology and Applied sciences 9(3): 1483-1499.
- m. Jungle rice – Potential Superfood . Agriculture Today. Volume 23, Issue 12 December 2020. Abha Saxena, Deepti Rai & Anup Kalra
- n. Hydroponics Green Fodder- An alternative and sustainable solution to Feed animals. Indian Dairyman . January 2021. Abha Saxena & Deepti Rai
- o. Paddy Nursery for Pesticide -free Rice production to boost Exports. Dec 2020. Indian Farming ICAR. Abha Saxena & Deepti Rai





## Financials

**AYURVET RESEARCH FOUNDATION**  
4TH FLOOR, SAGAR PLAZA, DIST.CENTRE, LAXMI NAGAR, DELHI -110092

**BALANCE SHEET AS AT 31st MARCH, 2021**

PARTICULARS	SCHEDULES	AS AT 31ST MARCH,2021 (Rs.)	AS AT 31ST MARCH,2020 (Rs.)
<b><u>SOURCES OF FUNDS</u></b>			
CORPUS FUND		4,18,25,000	3,18,25,000
GRANTS	A	---	3,16,773
GRANT AGAINST FIXED ASSETS		41,26,678	41,26,678
ACCUMULATED DEPRECIATION	B	2,18,60,883	1,91,10,331
<b>TOTAL</b>		<b>6,78,12,561</b>	<b>5,53,78,782</b>
<b><u>APPLICATION OF FUNDS:</u></b>			
FIXED ASSETS	B	4,22,48,039	4,20,93,415
FIXED ASSETS AGAINST GRANT	BA	41,26,678	41,26,678
<b>CURRENT ASSETS, LOANS AND ADVANCES :</b>	C		
A) SUNDRY DEBTORS		11,100	6,300
B) CASH & BANK BALANCES		21,23,152	48,09,890
C) INVESTMENTS		1,19,00,000	20,00,000
D) LOANS & ADVANCES		10,75,923	6,19,216
		<u>1,51,10,175</u>	<u>74,35,406</u>
Less: CURRENT LIABILITIES AND PROVISIONS	D	18,10,730	1,32,99,446
INCOME & EXPENDITURE A/C		81,38,398	38,79,691
<b>TOTAL</b>		<b>6,78,12,561</b>	<b>5,53,78,782</b>
NOTES TO ACCOUNTS	I	-	

FOR SANDY ASSOCIATES  
CHARTERED ACCOUNTANTS  
FRN - 007337N

FOR AND ON BEHALF OF THE BOARD

SANDEEP GUPTA  
PROPRIETOR  
M. NO - 086069

MOHAN JI SAXENA  
MANAGING TRUSTEE

PRADIP BURMAN  
CHAIRMAN

PLACE: GHAZIABAD  
DATED: 29th June, 2021

**AYURVET RESEARCH FOUNDATION**  
**4TH FLOOR, SAGAR PLAZA, DIST.CENTRE, LAXMI NAGAR, DELHI -110092**  
**INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED ON 31ST MARCH, 2021**

PARTICULARS	SCHEDULE	FOR THE YEAR FOR THE YEAR	
		2020-21 (Rs.)	2019-20 (Rs.)
<b><u>A) INCOME</u></b>	E		
DONATIONS		2,03,79,201	2,00,00,000
INTEREST INCOME		6,65,537	35,866
GOVERNMENT GRANT UTILIZED		40,07,626	37,09,562
SALES		7,26,754	4,83,458
TRAINING FEE		11,07,446	9,38,490
		2,68,86,564	2,51,67,376
<b><u>B) EXPENDITURE</u></b>			
EMPLOYEES COST	F	94,76,080	88,18,133
COST OF SALES	G	25,69,474	11,41,497
OTHER EXPENSES	H	1,63,49,166	1,24,78,831
DEPRECIATION	B	27,50,552	31,55,162
TOTAL NET EXPENDITURE		3,11,45,272	2,55,93,623
SURPLUS/DEFICIT FOR THE YEAR CARRIED DOWN		(42,58,708)	(4,26,247)
		(42,58,708)	(4,26,247)
SURPLUS/DEFICIT BROUGHT FORWARD		(38,79,691)	(34,53,444)
BALANCE CARRIED OVER TO BALANCE SHEET		(81,38,398)	(38,79,691)

AS PER OUR REPORT OF EVEN DATED ATTACHED

**FOR SANDY ASSOCIATES**  
**CHARTERED ACCOUNTANTS**  
*FRN - 007337N*

**FOR AND ON BEHALF OF THE BOARD**

**SANDEEP GUPTA**  
**PROPRIETOR**  
*M. NO - 086069*

**MOHAN JI SAXENA**  
**MANAGING TRUSTEE**

**PRADIP BURMAN**  
**CHAIRMAN**

**PLACE: GHAZIABAD**  
**DATED: 29th June, 2021**

# Our Esteemed Collaboration



**RAJUVAS** — Rajasthan University of Veterinary and Animal Science  
Bikaner, Rajasthan



**DUVASU** — U.P. Pt. Deen Dayal Upadhyaya Pashu Chikitsa Vigyan  
Vishwavidyalya evem Go Anusandhan Sansthan, Mathura, U.P.



**MAFSU** — Maharashtra Animal & Fishery Sciences University  
Nagpur, Maharashtra



**NDVASU** — Nanaji Deshmukh Veterinary and Animal Science University  
Jabalpur, M.P.



**LUVAS** — Lala Lajpat Rai University of Veterinary  
and Animal Sciences, Hisar, Haryana



**NABARD** — National Bank for Agriculture and Rural Development



**GLA** — Ganeshi Lal Aggarwal University, Mathura, U.P.



**SKUAST-J** — Sher-e-Kashmir University of Agricultural Sciences and  
Technology, Jammu, J&K



**AAU** — Assam Agricultural University, Jorhat, Assam



**NMPB** — National Medicinal Plant Board



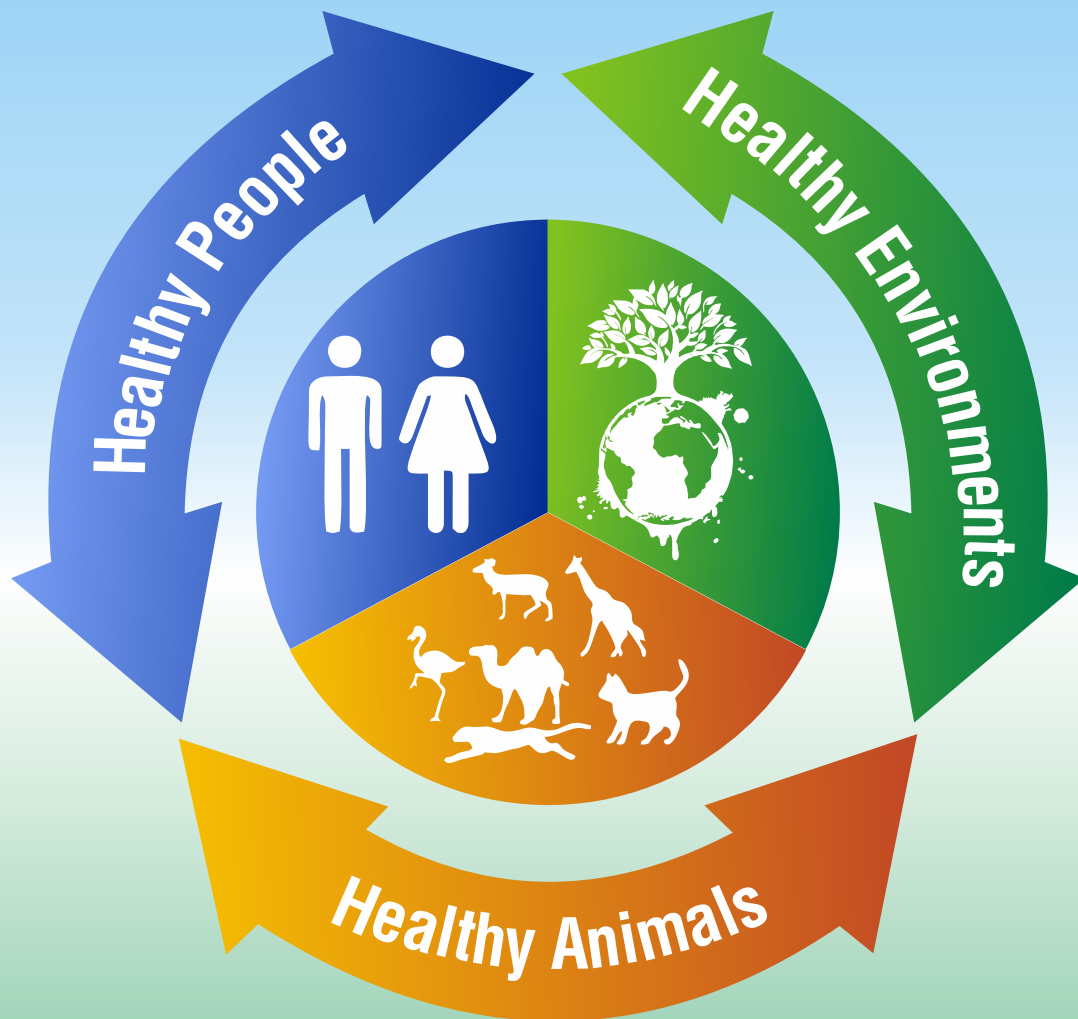
**CAU** — Central Agriculture University, Imphal, Manipur



**SVPUAT** — Sardar Vallabhbhai Patel University of Agriculture  
& Technology, Meerut.

# 1 Health

One Health is “the collaborative efforts of multiple disciplines working locally, nationally, and globally to attain optimal health for People, Animals and our Environment” as defined by the one health Initiative Task force.



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**AYURVET  
RESEARCH  
FOUNDATION**