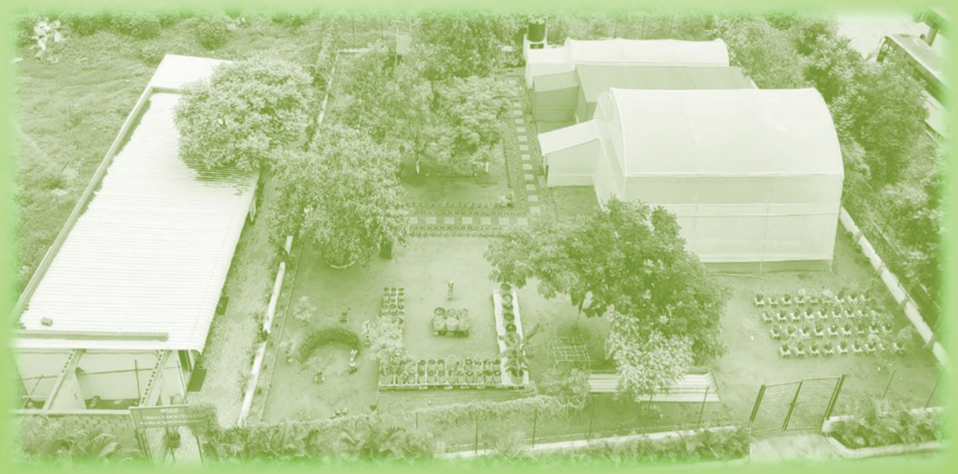
"நிலம், நீர், காற்றை காப்போம் "



SRM
INSTITUTE OF SCIENCE & TECHNOLOGY
Deemed to be **University** *u/s 3 of UGC Act, 1956*

Faculty of Agricultural Sciences

SRM Institute of Science and Technology

ANNUAL REPORT
2018 -2019

SRM Institute of Science and Technology
Kattankulathur – 603 203
Kancheepuram Dist. Tamil Nadu, India

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Annual Report
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Kancheepuram Dist, Tamil Nadu, India.

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ANNUAL REPORT (2018 – 2019)

Preface

The Faculty of Agricultural Sciences came into existence in SRM Institute of Science and Technology with the appointment of Dr.T.M. Thiyagarajan, former Dean (Agricultural College and Research Institute, Killikulam) and Director (Centre for Soil and Crop Management Studies, Coimbatore) of Tamil Nadu Agricultural University, as Dean on 25 June 2018.

The Faculty has expanded since then, with the commencement of academic activities and staff recruitment and establishment of various facilities.

This report covers the period up to the induction of fresher's 2019.

The growth and development reported here were all possible with the generous support, guidance, constant monitoring and encouragement of the Honourable Chancellor, Vice Chancellor, Pro Vice Chancellor (External Affairs), Registrar, and Director Finance; dedicated support and active involvement of academic and non-teaching staff of the Faculty and officers and staff of other departments in SRMIST.

I sincerely thank everyone who has contributed to the first-year success of the Faculty of Agricultural Sciences in SRMIST.

Dr.T.M. Thiyagarajan

Dean

SRM Institute of Science and Technology

SRM Institute of Science and Technology (formerly known as SRM University) is a private university that provides an exceptional education for undergraduates, post graduate and professional students. SRM Institute of Science and Technology is one of the top-ranking universities in India with a national recognition of A^{++} grade by NAAC, Category 1 University by MHRD, and Rank 41 by NIRF and International recognition of QS I-GAUGE Diamond rated Institute. SRMIST is also a recipient of National Intellectual Property Award 2018 in the category of Indian Academic Institution for Patents and Commercialization from the Ministry of Commerce and Industry, Government of India. SRM-IST has over 38,000 students and more than 2600 faculty across all the campus, offering a wide range of undergraduate, postgraduate and doctoral programs in Engineering, Management, Medicine and Health sciences, Agricultural Sciences, Law, and Science and Humanities.

Our Vision

To emerge as a World - Class University in creating and disseminating knowledge, and providing students a unique learning experience in Science, Technology, Medicine, Management and other areas of scholarship that will best serve the world and betterment of mankind.

Our Mission

MOVE UP through international alliances and collaborative initiatives to achieve global excellence.

ACCOMPLISH A PROCESS to advance knowledge in a rigorous academic and research environment.

ATTRACT AND BUILD PEOPLE in a rewarding and inspiring environment by fostering freedom, empowerment, creativity and innovation.

From the Chancellor

Agriculture is central to the development of a country. Everyone who eats food is connected with agriculture. It is the farmers who toil in the fields to produce the food, but their economic status has never been self-sufficient.

The Government of India have taken several steps to double the farmers' income in the country. SRMIST decided to support this initiative by introducing the Faculty of Agricultural Sciences into its ambit of quality education.

Undergraduate programme B.Sc. (Hons) Horticulture was introduced from 2018-19 academic year and B.Sc. (Hons) Agriculture is added from 2019-20. More UG, PG and Diploma programmes in other fields of agricultural sciences will be initiated in a phased manner.

The College of Agricultural Sciences (SRM-CAS) being established near Acharapakkam will be serving as a futuristic institution for higher education, research and extension in agriculture and allied sciences integrating Ecology, Food, Nutrition and Health.

SRM-CAS will strive to promote agriculture with healthy food production and healthy lives.

Dr. T. R. Paarivendhar MP
(Chancellor)

The Value of Green

Agriculture is a primary production system in India that makes a significant contribution to the wealth and quality of life for rural and urban communities. Smallholders now cultivate 42% of operated land and constitute 83% of total landholdings.

Green Revolution (GR) has changed the traditional pattern of cropping for higher efficiency & productivity of the production systems. If 1950's was the decade of development and expansion of irrigation and 1960's of intensification of high yielding variety (HYV) in the most favourable environments, 1970's one of exploitative agriculture confined to more favourable ecologies through integration of HYV, fertilizer and pesticide-based technology, particularly of wheat and rice. It was only in the late 70's or early 80's are that the need for appropriate technology for rainfed, under-invested dry farming and stressed ecologies, was recognized. These were areas that had remained beyond the pale of GR technology.

Today India is not only self-sufficient in respect of demand for food but is also a net exporter of agri-products occupying seventh position globally. It is one of the top producers of cereals (wheat & rice), pulses, fruits, vegetables, milk, meat and marine fish. The availability of fruits, vegetables, meat & fish has increased.

The impressive agricultural growth and gains since 1947 stand as a tribute to the farmers' resilience to multiple challenges and to their grit & determination to serve and secure the nation's demand for food and raw material for its agro-industries.

Having direct and indirect linkages with rest of the economy, agriculture sector contributes to rural prosperity through employment and income provision to the masses. Evidences suggest that the speed with which agriculture sector reduces rural poverty is at least twice than what the rest of the economy does.

Owing to the increasing population over the years, demand for food is naturally expected to increase in coming years. The mission of "Doubling of Farmers' Income" (DFI) in India has enthused and fuelled lot of energy and motivation among the stakeholders and channelled the efforts in a unified direction. (Source: http://agricoop.nic.in/doubling-farmers)

Faculty of Agricultural Sciences

The Faculty was inaugurated on 10th August, 2018 by the Honourable Chancellor, Dr.T. R. Paarivendhar and felicitated by the Vice Chancellor, Dr. Sandeep Sancheti; the Pro Vice Chancellor, Dr. R. Balasubramanian; the Registrar, Dr. N.Sethuraman and Mr. M. Balasubramanian, Director Finance and Dr. T. V. Gopal, Director Admissions.

The overall mission of the Faculty of Agricultural Sciences (SRM-FAS) is to provide knowledge and support for teaching, conducting research and capacity-building on the principles and practices for climate-smart, sustainable agriculture to produce healthy food with higher factor productivity and livelihood security.

Strategic Plans

- Establish a model agricultural campus, in Achirupakkam with Integrated Agroecological System (IAS) for hands-on teaching of students, farmers and interested public to gain experiential learning about food production and its relationship to the ecosystem.
- Establish Schools of Agroecology / Crop Health / Agricultural Rural Development / Precision Farming / Water conservation for Research and Higher Education.
- Introduce diploma programmes on healthy crops for healthy life; herbal and nutri farming, soil health management, urban farming, economic irrigation; bioenergy, agribusiness management, precision farming technologies; village resource centre etc.
- Establish a Rural Development Institute.
- Promote agroecological and climate-smart principles to support the adaptation of agriculture and allied activities for food and livelihood security.
- Transforming agriculture into agribusiness.
- Develop innovative technologies and farm machinery for hilly and tribal agriculture.
- Bridge the gap between agriculture and other sciences through hybridized, integrated approaches.
- Contribute to sustainable food value chain development.
- Promoting agricultural rural development with family farming, secondary agriculture and non-farming livelihood.
- Empowering farmers and rural women with modern extension delivery system.
    - Introduce Summer School on Agroecology for schools' students, agri-professionals and the public.
    - Organize international / national symposia, workshops, e.g. Innovative Sustainable Crop Production Systems (ICPS); Agroecological Food Systems; Care farm for Healthy life etc.
    - Create "New Extensionists" for community-based extension with knowledge on agricultural markets.
    - Contribute to the initiatives on "Doubling the Farmers' Income" and "Sustainable Development Goals".

The Faculty grew with the appointments of teaching staff, formation of Board of Studies and creation of facilities and commencement of undergraduate programme in Horticulture in 2018 and undergraduate programme in Agriculture in 2019. Several infrastructure facilities have been created towards agricultural education. The curricula and syllabi for the two UG programmes have been formulated based on the guidelines of the Fifth Dean's Committee Report of Indian Council of Agricultural Research. New courses have been added to alien with the global developments in agriculture. A new campus for agriculture is being established near Achirupakkam.

Establishing the Faculty

Requirements for establishing a new College of Agriculture as recommended by ICAR-Fifth Dean's Committee and compliance by SRMIST are presented in the Table below:

S.No.	Item	ICAR Fifth Dean's Committee Recommendation	SRMIST
1	Degree	B.Sc.(Hons.) Agriculture B.Sc.(Hons.) Horticulture	B.Sc.(Hons.) Agriculture from 2019 B.Sc.(Hons.) Horticulture from 2018
2	Eligibility Criteria for admission to UG programme	10+2 or intermediate with PCMB, PCB, PCM or Agriculture) from a recognised Board/University	10+2 with PCBM, PCB, PCM, PCBZ, PCF, PCBA, PCA from a recognized Board/university
		P - Physics, C - Chemistry, M - Mathematics, B – Biology, Bo – Botany, Z – Zoology, A – Agriculture, F - Forestry	
3	Medium of Instruction	English	English
4	Intake :	60 students per year (minimum)	2018 Horticulture: 34 2019 Horticulture: 67 2019 Agriculture: 240
5	Credit load	170-183	184
6	Number of courses prescribed for B.Sc.(Hons.) Agriculture	59	67*
7	Number of courses prescribed for B.Sc.(Hons.) Horticulture	52	58*
8	Teaching Staff Strength	Total strength after four years should have 45 teachers as faculty. However, in extreme cases, it can be 31 and few courses viz. Basic Sciences, and Humanities, Maths, and Computer Sciences, etc. can be completed by hiring the teachers	At present, the strength is 28. The required strength will be positioned in time to cater to the teaching requirement
9	Infrastructure facilities	Specified for all categories viz., floor space for academic and residential; equipment's and farm	Class rooms, laboratories, farm land, are available within and closer to the SRMIST Kattankulathur campus. A separate campus with all infrastructure facilities is under establishment near Achirupakkam

* includes courses classified as non-gradial in ICAR recommendation and additional ones.

Courses Offered

The UG programme B.Sc. (Hons) Horticulture was started from the academic year 2018-19 and B.Sc. (Hons) Agriculture is being introduced from 2019-20.

Counselling

The Dean and faculty members take part in the counselling programmes organized by the Directorate of Admissions to attract aspiring students.

2018-SRMIST, Kattankulathur

2019-Dinamalar Vazhikaatti Programme- Dindigul

The number of students admitted in the UG programmes is presented below:

Degree	Year of Start	No. of Students					
		2018			2019*		
		Boys	Girls	Total	Boys	Girls	Total
B.Sc.(Hons) Horticulture	2018	26	8	34	39	28	67
B.Sc.(Hons) Agriculture	2019	-	-	-	154	83	237

* As on 14th August, 2019

Induction of the first batch students of horticulture happened on 10th August 2018 with the blessings of the Chancellor, Vice Chancellor (Dr. Sandeep Sancheti), Registrar (Dr. Sethuraman) and the Director Finance (Mr. Balasubramanian).

Induction of the students admitted in 2019 is scheduled on 19 August 2019.

Faculty

Recruitment of faculties took place in a phased manner by a selection committee and based on the merits of the candidates the appointments were done. The number of staff currently working is presented below:

Department	Specialization	Designation	Name
Agroecology	Agroecology	Assistant Professor	Dr. Geetha, S
		Tutor	Ms. Gomathi, V
	Agronomy	Assistant Professor	Dr. Marimuthu, S
			Dr. Selvakumar, G
	Agricultural Microbiology	Assistant Professor	Dr. Anbukkarasi, K
			Dr. Melvin Joe, M
		Tutor	Mr. Prabhakaran, S
	Soil Science	Assistant Professor	Dr. Angelin Silviya, R
	Environmental Science	Assistant Professor	Dr. Sanjeeva Gandhi, M
		Tutor	Ms. Akila, S
	Animal Sciences	Assistant Professor	Dr. Prabakar, G
Crop Health	Crop Physiology	Assistant Professor	Dr. Partheeban, C
			Dr. Jidhu Vaishnavi, S
		Tutor	Ms. Mohanasundari, P
	Agricultural Entomology	Assistant Professor	Dr. Ramezeame, L
	Plant Pathology	Assistant Professor	Dr. Ragheswari, S
	Plant Biochemistry	Assistant Professor	Dr. Jayanthy Balachander
			Dr. Devika, V
Agricultural Botany	Genetics and Plant Breeding	Assistant Professor	Dr. Selvakumar, D
			Dr. Mahendran, R
Agricultural Social Science	Agricultural Economics	Assistant Professor	Dr. Anbarassan, A
			Dr. Periasami, N
	English	Assistant Professor	Dr. Akshara Govind, U.S.
	Mathematics	Assistant Professor	Ms. Selva Rani, M
			Ms. Muthulakshmi, A
Horticulture	Fruit Science	Assistant Professor	Dr. Gopu, B
			Dr. Senthilkumar, S
	Vegetable Science	Tutor	Ms. Nivetha, K
	Ornamental Plant Science	Assistant Professor	Dr. Anandhi, S
		Tutor	Ms. Kanimozhi, C
	Food Science	Assistant Professor	Dr. Sheela, P
Farm Management	SRM Care farm	Assistant Professor	Dr. Murugan, N
	SRMIST Kattankulathur	Horticulture Officer	Mr. Muthamilselvan, D
	SRM College of Agricultural Sciences	Farm Manager	Mr. Sivachandran, K
		Farm Supervisor	Ms. Kalaivani, G
		Farm Supervisor	Mr. Muthusiva, O

Designation	Number
Assistant Professor	26
Tutor	6
Farm Manager	2
Farm Supervisor	2
Farm Supporting Staff	76
Office &technical staff	7
TOTAL	119

Staff and students of Faculty of Agricultural Sciences

Board of Studies

Two Boards of Studies, one for Horticulture and another for Agriculture have been constituted with members as detailed below:

Board of Studies (Horticulture)

Chairman	Dr. T.M. Thiyagarajan	Dean, Faculty of Agricultural Sciences, SRM Institute of Science and Technology
Faculty Members	Dr. S. Senthilkumar	Assistant Professor (Horticulture)
	Dr. B. Gopu	Assistant Professor (Horticulture)
External Experts	Dr. V. Kanthaswamy	Dean i/c, Professor of Horticulture, Pandit Jawaharlal Nehru College of Agriculture and Research Institute, Karaikkal - 609 603
	Dr. K. Sekar	Professor and Head, Department of Horticulture, Faculty of Agriculture, Annamalai University, Annamalai Nagar - 608 002
	Dr. T. Sakthivel	Principal Scientist, Division of Fruit Crops, Indian Institute of Horticultural Research, Hesaraghatta Lake Post, Bengaluru - 560 089
Student	Mr. John Dennis, V	Second Year, B.Sc.(Hons) Horticulture
	Ms. Priyadarshini, S	Second Year, B.Sc.(Hons) Horticulture

Board of Studies (Agriculture)

Chairman	Dr. T.M. Thiyagarajan	Dean, Faculty of Agricultural Sciences, SRM Institute of Science and Technology
External Members	Dr. S.K. Manivannan	Associate Professor, School of Management, SRM Institute of Science and Technology,
	Dr. M.V. Sriramachandrasekharan	Professor (Soil Science & Agricultural Chemistry), Annamalai University, Annamalai Nagar, Chidambaram, TamilNadu, 608002.
Faculty Members	Dr. G. Selvakumar	Assistant Professor (Genetics and Plant Breeding),
	Dr. A. Anbarassan	Assistant Professor (Agricultural Economics),
	Dr. C. Partheeban	Assistant Professor (Crop Physiology),
	Dr. K. Anbukkarasi	Assistant Professor (Agricultural Microbiology)
	Dr. S. Marimuthu	Assistant Professor (Agronomy)
	Dr. R. Angelin Silviya	Assistant Professor (Soil Science)

The first meeting of the Board of Studies (Horticulture) was held on 07th July, 2018 and Board of Studies (Agriculture) was held on 15th March, 2019.

Rules and Regulations

The Regulations for the B.Sc. (Hons.) Horticulture - 2018 and B.Sc. (Hons.) Agriculture - 2019 were framed in line with the other UG programmes in Professional Courses of SRMIST and as per the Guidelines of the ICAR-Fifth Dean's Committee Report (2017) in consultation with the Controller of Examination, SRMIST. These regulations have been approved by the Academic Council of SRMIST and are available in the Handbook.

Curriculum and Syllabus

The curriculum and syllabi as recommended by the Fifth Dean's Committee of ICAR is adopted in SRMIST with a few additional courses and additional topics in each course.

The curriculum and syllabus for the Horticulture programme was formulated by consultations with Dr. Kumar, Presently Vice Chancellor, TNAU and Former Dean, Horticulture College and Research Institute, TNAU and after detailed discussion in the Board of Studies for Horticulture.

The curriculum and syllabus for the Agriculture programme was formulated after detailed discussions with the staff members and consultations with teachers of TNAU and also in the Board of Studies for Agriculture.

Details of curriculum and syllabus for Horticulture and Agriculture programs are available in the Handbook. Comparison of the courses recommended by the ICAR Fifth Dean's Committee and the courses offered at SRMIST is presented in Annexure I and II.

Credit Distribution (Semester-wise)

B.Sc. (Hons.) Horticulture

Semester	CREDITS		
	Theory	Practical	Total
First	9	11	20
Second	14	9	23
Third	15	11	26
Fourth	13	11	24
Fifth	15	9	24
Sixth	13	11	24
Seventh	0	23	23
Eighth	0	20	20
TOTAL	**79**	**105**	**184**

B.Sc. (Hons.) Agriculture

Semester	CREDITS		
	Theory	Practical	Total
First	14	9	23
Second	14	8	22
Third	13	12	25
Fourth	13	10	23
Fifth	14	10	24
Sixth	15	9	24
Seventh	0	22	22
Eighth	0	21	21
TOTAL	**83**	**101**	**184**

Credit Distribution (Subject-wise)

B.Sc. (Hons.) Horticulture

S.No.	Subject	Code	Credits		
			Theory	Practical	Total
1	Horticulture	HOR	32	23	55
2	Agroecology	AGE	10	7	17
3	Natural Resource Management	NRM	4	5	8
4	Crop Health	CRH	16	9	25
5	Genetics and Plant Breeding	GPB	3	2	5
6	Agricultural Social Sciences	AGS	5	3	8
7	Supplementary Courses	SUP	5	4	9
8	Mathematics	MAT	2	2	4
9	Skill Education	SKE	2	4	6
10	Physical and Health Education (Non-GPA / Compulsory)	PHE	0	3	3
11	Student READY	STR	0	43	43
TOTAL			**79**	**105**	**184**

B.Sc. (Hons.) Agriculture

S.No.	Subject	Code	Credits		
			Theory	Practical	Total
1	Agroecology	AGE	17	14	31
2	Natural Resource Management	NRM	8	4	12
3	Crop Health	CRH	17	9	26
4	Genetics and Plant Breeding	GPB	9	5	14
5	Agricultural Social Sciences	AGS	11	6	17
6	Horticulture	HOR	9	7	16
7	Supplementary Courses	SUP	6	5	11
8	Mathematics	MAT	2	2	4
9	Skill Education	SKE	2	2	4
10	Physical and Health Education (Non-GPA / Compulsory)	PHE	0	3	3
11	Student READY	STR	0	43	43
12	Elective Core	ELC	2	1	3
TOTAL			**83**	**101**	**184**

New Initiatives in Agricultural Education at SRMIST

The Faculty of Agricultural Sciences has taken several new initiatives to bolster agricultural education for different stakeholders.

Introduction of agroecology in the agriculture curriculum in India

Today's food and agricultural systems have succeeded in supplying large volumes of food to global markets. However, high-external input, resource-intensive agricultural systems have caused massive deforestation, water scarcities, biodiversity loss, soil depletion and high levels of greenhouse gas emissions. Agroecology is a key part of the global response to this climate of instability, offering a unique approach to meeting significant increases in our food needs of the future while ensuring no one is left behind (FAO).

Agroecology is an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system.

More recently, agroecology has entered the discourse of international and UN institutions. But in India, agroecology is yet to find a place in the curriculum of agricultural education.

Realizing the importance of the subject SRMIST has included agroecology in the curriculum of the UG programmes in Agriculture and Horticulture. A new course "Introduction to Agroecology" has been introduced for both horticulture and agriculture programmes for the first time in India.

Introducing New Divisions in Agricultural Science in India

With the core concept of the Faculty being identified as agroecology, new grouping of subjects has been contemplated unlike conventional practice.

Agroecology

To foster research in agroecology, a new division / discipline of Agroecology is being established in the Faculty of Agricultural Sciences. In this group, the following subjects will become part of it: Agroecology, agronomy, agricultural microbiology, environmental science, climate change, agroforestry, organic farming.

It is planned to start a Centre for Agroecological Studies.

Crop Health

A new division of Crop Health is being introduced wherein, the following subjects are brought under: Plant Biochemistry, Crop Physiology, Agricultural Entomology, Plant Pathology, Soil Fertility and Weed Management which are related to the well-being and growth of the crops.

Introduction of Exposure Visits

Several exposure visits for the students are organized to expose the students to agricultural institutions (national, state and private) to gain first-hand knowledge on their activities.

The detailed list of such visits and what the students gained by such visits are presented below:

Visit 1. Organic Farm products Exhibition

Date: 11th August, 2018.
Place: Chennai Trade Centre.


Learning exposures:

- Different organic farming products exhibited by various organizations.
- Essentiality and importance of organic certified products on human health.
- Current scenario and scope for young entrepreneurs with agricultural marketing.

Visit 2. MS Swaminathan Research Foundation

Date: 5th September, 2018.
Place: Taramani, Chennai.


Learning exposures:

- Meeting the Legend in Agricultural Science, Prof. M.S. Swaminathan.
- Multiple micronutrient fortified rice.
- Facilities and activities of MSSRF on livelihood of farming community.
- Medicinal garden where medicinal value of each herb available with Braille letters.

Visit 3. Karuna Nursery

Date: 5th September, 2018.
Place: ECR, Injambakkam, Chennai.

Learning exposures:

- Commercial maintenance of ornamental plants.
- Layout and planning in establishment of commercial nursery.
- Propagation practices in plant multiplication process.

Visit 4. Growmore Biotech

Date: 22nd October, 2018.
Place: Moranapalli, Hosur.
Interaction with Dr. Bharathi, MD, Growmore Biotech Ltd.

Growmore Biotech Ltd.is an agri-biotechnology based company located at Hosur, Tamil Nadu. It has been set up to produce tissue culture plants of 85 different species of plants covering Horticultural plants, Forestry trees, Herbal Plants, Ornamental Plants and Agricultural Plants that are free from diseases. Presently bamboo plants are produced in large quantity for farmers who are practicing Hi-tech horticulture in India and abroad. Tissue Culture bamboo plants are also planted in several countries like Argentina, Ethiopia, Ghana, Malawi, Mozambique, South Africa, Tanzania, Madagascar, Mauritius, Sri Lanka, Indonesia, Cambodia, Vietnam & Philippines and experienced the benefit of bamboo plants.

Tissue culture plantlets and byproducts

Bheema Bamboo

Learning exposures:

- Techniques in development of superior clones of bamboo from different species.
- Commercial production of Tissue Culture banana plants.
- Various byproducts of Beema bamboo.

Visit 5: University of Agricultural Sciences, GKVK Campus

Date: 23rd October, 2018.
Place: Bengaluru.

The University of Agricultural Sciences (UAS, Bangalore) was established in 1964 as UAS Bangalore by a legislative act. The university has well equipped specialized laboratory / research units with sophisticated equipment's to carry out both fundamental and applied research in the area of agricultural sciences. The students of SRMIST visited University Orchard, Quality Analytical Laboratory for Medicinal and Aromatic Crops, Biofertilizer laboratory, Post-Harvest Technology Centre and other facilities at UAS, GKVK Campus.

Sugandha Vana

Biofertilizer Production Unit

Food Processing and Agricultural Engineering unit

Learning exposures:

- Layout and establishment of model horticulture nursery.
- Mother plant block for elite planting materials 'SUGANDHA VANA', which was established under central sector scheme funded by Directorate of Arecanut and Spices Development.
- Extraction and utility of essential oil from various aromatic crops *viz.,* Lemon Grass, Rosemary, Citronella, Thyme, Coriander Oil, Lavender, Patchouli, Palmarosa, Vetiver, Geranium etc.
- Production aspects of various commercial biofertilizers and bio-control agents.

- Various processing equipment's and value addition techniques for several horticultural commodities.

Visit 6: Indian Institute of Horticultural Research

Date: 24th October, 2018.
Place: Hesaraghatta.

The institute was established in 1970 and has its main research station at Hesaraghatta, Bengaluru with an area of 263 ha. Currently the institute has well-defined 11 divisions and four sections. The Institute has also got an Agriculture Technology Information Centre (ATIC), which is a single window agency for dissemination of information and technologies developed by the Institute. All the technological products and popular publications developed by the Institute are sold to the farmers and interested public through the agricultural technology information centre. Dr M.R. Dinesh is the Director of the Institute.

Institutional germplasm

Osmatically dehydrated products

Learning exposures:

- Institute Germplasm plots for various fruit and vegetable crops.
- Fruit Crops Nursery Unit, Gamma chamber.
- Concepts in processing for osmotically dehydrated fruits.
- Extensional activity and technical support for farming community by ATIC.

Visit 7: National Bureau of Soil Survey and Land Use Planning

Date: 25th October, 2018.
Place: Hebbal, Bengaluru.
The centre was established in 1956 under Ministry of Agriculture (GOI) and brought under ICAR in 1969. With the establishment of NBSS & LUP in 1976 it became a regional centre. The centre is mandated with the generation of land/soil resources data for the operational jurisdiction of the south India viz., Andhra Pradesh, Telangana, Puducherry, Tamil Nadu, Goa, Karnataka and Kerala. The activities of research, human resource development and user interactions are taken up in the areas of land/soil resource survey and mapping, soil correlation, land use planning, remote sensing applications, GIS applications, Agro-ecological zonation's. The centre also engaged with tribal sub-plan activities.

Learning exposures:

- Scientific planning and management of natural resources.
- Soil profile study and watershed planning.
- Role of nutrients in plant growth and human health.

Visit 8: AME Foundation

Date: 25th October, 2018.
Place: Banashankari, Bengaluru.
Interaction with: Mr. K.V.S. Prasad, Executive Director & Chief Editor, LEISA.

AME Foundation (AMEF), a resource organization, has been promoting ecological agriculture for more than 27 years. AMEF has been guiding small and marginal rainfed farmers to manage their natural farm resources better, practice alternative eco-farming practices for enhanced yields and reduced costs. AMEF believes that sustainable management of natural resources is the key to improved livelihoods, stable agricultural development as well as improved ecological balances.

Executive Director briefing Foundation activities to students

Learning exposures:

- Activities pertaining to ecological agriculture.
- Low External Input Sustainable Agriculture (LEISA).
- LEISA India, published by AME Foundation, a quarterly magazine on ecological agriculture.
- Activities on field demonstrations and trainings on agricultural technologies to rural youth through farmer field school.

- Support rendered to farm women in framing farm self-help group.

Visit 9: AHIMSA Farm

Date: 10th November, 2018.
Place: Seekinankuppam, Chennai.
Interaction with: Mr. Vimal, Director AHIMSA.

AHIMSA is a Non-Governmental Organization registered under Tamil Nadu Societies Registration Act and continuously providing services for the past 37 years for the up-liftment of socio-economic development of the needy people. Activities include Skill development and undertaking projects for State and Central Government with support of grant in aid assistance.

Learning exposures:

- Sensor based irrigation scheduling in cultivation of crops.
- Water conservation and management practices in crop cultivation.
- Effective use of organic fertilizers in promotion of crop growth.

Visit 10: Central Institute of Brackish water Aquaculture (CIBA)

Date: 8th April, 2019.
Place: Muttukadu, Chennai.

Brackish water aquaculture is one of the high potential areas for increasing finfish and shell fish production and for deriving maximum economic and social benefits. Indian Council of Agricultural Research (ICAR), New Delhi. The Central Institute of Brackish water Aquaculture (CIBA) was established in 1987 and serves as the nodal agency for the development of brackish water aquaculture in the country. The Headquarters of the Institute is located at Chennai with an Experimental Field Station at Muttukadu, about 30 km south of Chennai.

Learning exposures:

- Basic and strategic research on sustainable brackish water culture systems.
- Species and systems diversification in brackish water aquaculture.
- Repository of information on brackish water fishery resources with a systematic database.
- Human resource development, capacity building and skill development through training, education and extension.

Visit 11: State Horticulture Farm

Date: 4th May, 2019
Place: Melottivakkam, Kancheepuram.
Interaction with: Mr. R. Satheesh Kumar, Horticulture Officer

Learning exposures:

- Propagation practices of fruit and ornamental crops.
- Vegetable and flower seed production and certification.
- Establishment of on-farm vermiculture unit.

Visit 12: National Agro Foundation

Date: 16th May, 2019.
Place: Tharamani, Chennai.

National Agro Foundation (NAF) was set up as a Public Charitable Trust in 2000 by Mr. C Subramaniam, Architect of India's Green Revolution and Bharat Ratna Awardee to revive rural India through rural innovations. After his demise Dr. A P J Abdul Kalam was the chairman and he held this post till he became the President of India. Inspired by the opportunity to deliver innovative and replicable solutions to the complex and interlinked socio-economic environmental challenges of today's rural India, this foundation articulated an agile strategy with prime focus on advancing and strengthening the interdependent and mutually reinforcing pillars of sustainable development – "Education" , "Economy" , "Environment" & "Empowerment".

Food processing laboratory

Soil testing laboratory

Learning exposures:

- Testing of food samples and internships offered to students.
- Soil sampling techniques and estimation of macro and micro nutrients.
- Essential oil and natural dye extraction techniques.
- Farm based technical support rendered by foundation at all level.

Introduction of Special Lectures

Opportunities are created for the students to listen to experts and managers of organizations related to agriculture, whenever they visit the Faculty or they are specially invited. These lectures add knowledge to the students on topics they are already taught or new ones to enlarge their vision. The detailed list of such lectures is presented below:

S.No.	Date	Speaker	Topic
1	24 Oct 2018	Mr. K. Rajeshwar Mahindra Research Valley Maraimalai Nagar.	Role of Mahindra & Mahindra in agriculture.
2	10 Dec 2018	Dr. Ajay Shrada, Assistant Professor, Precision Ag/Machine Systems Engineer,920 N 17th Street, 1042 Seaton Hall | Biological and Agricultural Engineering, Kansas State University | Manhattan, KS 66506, USA.	Precision farming
3	20 Feb 2019	Prof. Mohamed Mujithaba Mohamed Najim, Vice Chancellor, South Eastern University of Srilanka, Oluvil, Srilanka	Sri Lankan Agriculture
4	26 Feb 2019	Mr. G. Ramakrishnan, Retired Joint Director of Agriculture & Consultant on Horticulture.	Propagation of Horticulture crops.
5	15 Mar 2019	Ms. Kalaivani, G., Farm Supervisor, SRMIST.	Zero Budget Natural Farming.

6	05 Apr 2019	Dr. Vidya R. Sridhar, Principal Scientist, R & D Food and Beverage, AVT Natural, Chennai	Career advancement
7	10 Apr 2019	Dr. John Henry, Specialist / Dairy Herd Development, HATSUN Agro Product Ltd., Chennai	Dairy development and Career Opportunities
8	02 May 2019	Dr. Krish Jayachandran, Professor, Co-ordinator of Agroecology, Florida International University, Miami, USA.	Agroecology: Principles and Practices
9	06 May 2019	Er. R. Kanagaraj, Managing Director, AHIMSA, Agriculture Division, Chennai Prof. M. V. Ashok, Chief General Manager NABARD (Retd.), Mumbai.	Social Entrepreneurship




Introduction of group discussion/group assignment

On a trial basis, for the new course “Introduction to Agroecology”, students were assigned three different assignments:

Assignment: Each student is given a topic on which he or she should collect information, prepare a document and make a PPT presentation at the end of the semester.

Group Assignment: All the students are divided into small groups, each group is given a topic on which the whole group will jointly collect the information, prepare a PTT and one of them make a presentation at the end of the semester.

Group Discussion: Once again different groups are formed and each group is given a topic and 30 minutes time; each group has to sit separately and discuss about the topic and one of them has to summarize the discussion orally in 5 minutes.

All these enabled the students to work independently and jointly and many of them were exposed to PPT presentation for the first time. These activities will expose the students to working together and prepare for competitive examinations.

Introducing Study Tour in the First Semester

In order to expose the students pursuing agricultural sciences what is happening in the field of Horticulture and Agriculture, a study tour with 0+1 credit has been introduced in the curriculum formulated in SRMIST. This is a special initiative to kindle the interests of the students to study the different courses offered as well as to decide their future after graduation from the beginning. The study tour will be for a period of five days in the first semester itself.

The Study Tour for Horticulture students will expose them to Horticulture business in Hosur area and horticultural research and education in Bengaluru as well as to NGOs involved in supporting farmers and agroecological innovations.

1. Horticulture farms and business establishments in Hosur.
2. Adhiyamaan College of Agriculture and Research, Shoolagiri.
3. Indian Institute of Horticultural Research (ICAR), Bengaluru.
4. University of Agricultural Sciences, Bengaluru.
5. National Bureau of Soil Survey and Land Use Planning (ICAR), Bengaluru.
6. AME Foundation, Bengaluru.

The Study Tour for Agriculture students will expose them to the various National and International Institutes in Agriculture near Hyderabad as well as to NGOs involved in supporting agroecological innovations.

1. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
2. National Institute of Plant Health Management (NIPHM).
3. National Institute of Rural Development and Panchayati Raj (NIRD).
4. Central Research Institute for Dryland Agriculture (CRIDA).
5. Indian Institute of Rice Research (IIRR).
6. Prof. Jayashanker Telangana State Agricultural University (PJTSAU).
7. Water and Land Management Training and Research Institute (WALAMTARI).
8. Aranya Permaculture Farm.

Thrust Areas

The major thrust areas identified for research are: Agroecology, Agricultural Rural Development, Urban Farming, Herbal Farming, Nutri farming, Precision Farming and Water Conservation.

Agroecology

Agroecology is the application of ecological concepts and methodological design for long-term enhancement and management of soil fertility and agriculture productivity. These all make the basis of a sustainable agriculture and aim to improve the food system and societal sustainability.

As a scientific discipline, the agro-ecology defines, classifies and studies agricultural systems and ecosystem's perspectives, recognizing the close relationship of these systems to surrounding social and economic environments. It is less about farms and their management practices and more about ecological systems and their sustainability in the face of exploitation.

Agroecology offers multiple benefits, including for increasing food security and resilience, boosting livelihoods and local economies, diversifying food production and diets, promoting health and nutrition, safeguarding natural resources, biodiversity and ecosystem functions, improving soil fertility and soil health, adapting to and mitigating climate change, and preserving local cultures and traditional knowledge systems (FAO).

The accelerated use of natural resources, the degradation of the land resource base with accompanying impacts on biodiversity and agricultural productivity, as also the impending effects of climate change are all posing a serious threat to the survival and welfare of the people. Natural resources need to be managed in a holistic manner as there are direct linkages among the various components. There is need for more awakening on natural resource governance. The degradation of inherent soil characteristics and declining nutrient-use efficiency have begun to negatively impact crop productivity.

Sustainable agriculture is the successful management of resources for agriculture to satisfy the changing human needs, while maintaining or enhancing the quality of environment, improving the social and economic conditions of the farmers, their employees, local communities and safeguards the health and welfare of farmers and conserving renewable natural resources.

- SRMIST is the first Agricultural Institution in the country to create a separate discipline "Agroecology".
- SRMIST is the first Agricultural Institution in the country to offer a new course (2+1) "Introduction to Agroecology" and introduced in the academic year 2018-19.
- SRMIST will be establishing a "Centre for Agroecological Studies" for conducting advanced research.
- SRMIST is establishing a "Ecocentric Agricultural Campus'' in Achirupakkam.
- A model "Integrated Agroecological System" is being established in SRM College of Agricultural Sciences at Achirupakkam.

- SRMIST is in the process of collaborating with Florida International University, USA on Agroecological Studies.

Agricultural Rural Development

Rural development is the process of improving the quality of life and economic well-being of people living in rural areas. Rural development is vital and more than 50% of India's population will continue to reside in rural areas until 2050. The concept of rural development must be considered with particular reference to agriculture, since agriculture is the basis of the livelihood of most rural families.

The human factor behind agriculture, the farmer remain in frequent distress, despite higher productivity and production. As many as 22.50% of the farmers live below official poverty line. The per capita income of the rural households is significantly less than that of urban households in India and the share of agriculture in rural income has witnessed a downwards trend.

A typical farming household manages expenses with unsteady, unpredictable and irregular income streams, owing to the seasonal nature of agricultural output which is further subject to other externalities. The overall wellbeing of the rural population depends on agriculture as a primary sector and various associated secondary and tertiary sector activities that either support agriculture or are supported by agriculture.

Large tracts of arable land have turned problem soils, becoming acidic, alkaline & saline physico-chemically. Climate change is beginning to challenge the farmer's ability to adopt coping and adaptation measures that are warranted. The costs of cultivation are rising. The markets do not assure the farmer of remunerative returns on his produce. Sustainability of agricultural growth faces serious doubt. Timely availability water, labour, inputs and credit are serious concerns facing the farmers.

There is demand for income growth from farming activity and self-sustainable models empowered with improved market linkage are required. There is need to transform the situation from 'rural people as consumers of industrial goods' to 'rural people as producers of industrial grade output, especially the population related to farming (Source: http://agricoop.nic.in/doubling-farmers).

SRM-CAS will be involving in the agricultural rural development of Tamil Nadu by establishing Agricultural Rural Development Centres in the districts and also provide technical support from Rural Development Institute in the College of Agricultural Sciences, Achirupakkam.

The Faculty of Agricultural Sciences is organizing SRM AGRI EXPO 2019 during 20-22 December 2019 to give major thrust to agriculture in and around Chennai, Kancheepuram, Chengalpattu, Thiruvallur districts.

Herbal and Nutri Farming

Traditionally, several plants / trees have been used for their medicinal properties and health benefits. Leaves, roots, flowers, seeds, barks, resin and pericarp of herbal plants / trees are used for nutrition supplement, flavouring, medicine, fragrances, savoury and cosmetics.

Herbs are tremendously popular these days with medicinal herbs, culinary herbs, and herbal teas, baths, candles and aromatherapy essences.

India is one of 17 mega biodiversity countries and contributes about 7% of world biodiversity. More than 7,000 plants species are known to be used as medicinal plants out of 17,000-18,000 flowering plants species in India. Largest share of the world population, about 80% rely on traditional medicines for their primary health care needs which are herbal and healer based. The inclination toward the herbal remedy is also increasing worldwide due to the harmful effects of synthetic chemicals.

Food security is not only about the quantity of food which we consume; it is also about the quality and diversity of that food as well. Nutrition insecurity contributes to the deaths of almost 10 million people each year and affects one billion people's health. Malnutrition, often called the "hidden hunger", can lead on to life-threatening illnesses. More than 70% of Indian women and kids have serious nutritional deficiencies. The nutrition challenge cannot be solved solely by the health sector: farmers are the first nutrient providers and the entire agri-food chain has a vital role to play. From increasing the availability of total calories, to specific measures on nutrient deficiencies, agriculture can play an important role in addressing nutrition security. Moringa and sweet potato for example, are excellent sources of many vitamins and minerals.

Medicinal and nutri-crops can be good source of income for farmers, as they are quite important for a number of pharmaceutical companies which have invested in contract farming of herbal crops. There is a huge scope for identifying the medicinal and nutritional values of several plants and developing herbal products. (https://www.nmpb.nic.in/content/medicinal-plants-fact-sheet).

For good nutrition and good health, research on crops with nutrient and medicinal values under Herbal and Nutri-Farming will be promoted in SRM-CAS.

Moringa is being cultivated in 3 acres in the SRM Care farm under contract farming to supply as a raw material for healthy food supplement.

Urban Farming

Urban farming is the practice of cultivating, processing and distributing food in or around urban areas. It can also involve animal husbandry, aquaculture, agroforestry, urban beekeeping, and horticulture. Food security, nutrition, and income generation are key motivations for the practice. More direct access to fresh vegetables, fruits and meat products through urban farming can improve food security and food safety. Urban farming includes recreation and leisure; economic vitality and business entrepreneurship, individual health and well-being; community health and well-being; landscape beautification; and environmental restoration and remediation.

Urban gardens are often places that facilitate positive social interaction, which also contributes to overall social and emotional well-being. Urban Farming can be seen as a means of improving the livelihood of people living in and around cities.

The energy used to transport food is decreased when urban farming can provide cities with locally grown food. The energy-efficient nature of urban farming can reduce each city's carbon footprint by reducing the amount of transport that occurs to deliver goods to the consumer. Also, these areas can act as carbon sinks offsetting some of the carbon accumulation that is innate to urban areas, where pavement and buildings outnumber plants. Choosing plants that do not lose their leaves and remain green all year can increase the farm's ability to sequester carbon. A rooftop containing 2000 m^2 of uncut grass has the potential to remove up to 4000 kg of particulate matter.

Only one square meter of green roof is needed to offset the annual particulate matter emissions of a car.

Urban agriculture is associated with increased consumption of fruits and vegetables which decreases risk for disease and can be a cost-effective way to provide citizens with quality, fresh produce in urban settings. Urban agriculture also provides quality nutrition for low-income households.

- Urban Farm Centre has been created in SRMIST, Kattankulathur, in an area of 1400 sq.m., is functioning from 23rd November 2018, with the prime objective to serve as an information centre for Urban farming to impart training programmes on urban agriculture, hi-tech agriculture to urban entrepreneurs, IT graduates, students, homemakers etc.
- A polyhouse, shade net house and mist chamber have been established in UFC to demonstrate cultivation of orchids, roses and vegetables and plant propagation.
- Urban Farm Centre will contribute in creating "Smart Cities" under SDG.

Precision Farming

Precision farming is a key component of the third wave of modern agricultural revolutions and can contribute to SDG. Precision farming means application of precise and correct amount of inputs like water, fertilizer, pesticides etc. at the correct time to the crop for increasing its productivity and maximizing its yields. Precision agriculture management practices can significantly reduce the amount of nutrient and other crop inputs used while boosting yields. Farmers thus obtain a return on their investment by saving on water, pesticide, and fertilizer costs.

Since over-application and under-application of agrochemicals are both minimized, this strategy has the potential for maximizing profitability and minimizing environmental impacts.

- Precision Farming will be one of the focus areas of SRM College of Agricultural Sciences.
- SRMIST is trying to collaborate with Kansas State University, USA and Mahindra Research Valley in carrying out research on Precision Farming.

Water Conservation

The world needs to produce an estimated 60% more food by 2050 to ensure global food security, and it must do so while conserving and enhancing the natural resource base. Water is a major input in the provision of food – from production in the field through all the steps in the value chain. Water is also required to meet personal and household needs, for energy and industrial production, and to maintain important water-dependent ecosystems and ecosystem services. With demand and competition for water on the rise, however, the planet's water resources are under increasing stress due to climate change, poor management and pollution. Water governance relates to the enabling environment in which water management actions take place: that is, the overarching policies, strategies, plans, finances and incentive structures that concern or influence water resources; the relevant legal and regulatory frameworks and institutions; and planning, decision-making and monitoring processes. Effective water governance promotes responsible actions and measures to protect and ensure the sustainability of water resources and to optimize the services and benefits obtained from those resources. Agriculture, which accounts for 70% of all water use, is increasingly required to "make its case" for its share of water to enable food production and

ensure food security, and the sustainability of agricultural water use is increasingly under scrutiny. There is an urgent need to consider how best to address control over, competition for, and access to water resources, while also ensuring efficient and effective management (FAO).

Continued and expanded agricultural production is required for global food security, but farmers' intensive reliance on agrochemical, fossil-fuel and other purchased inputs has put the sustainability of production systems at risk. Excessive input-based modern agriculture has severely compromised the health of natural resources (soil, water and biodiversity) and the quality of our environment and food. Thus, there is an urgent need to rethink the choice of technology, practices, policies, and strategies to achieve sustainable crop production.

Agroecological approaches aim to diminish farmers' dependence on external inputs as much as possible by mobilizing and invigorating the biological processes and potentials available in existing plants and the soil systems that support our crops. Empirical evidence shows that these objectives are achievable.

In 2000, the System of Rice Intensification (SRI) was a little-known, empirically-based innovation, with limited scientific validation of its potentials and performance. Today, SRI is widely if not yet fully accepted among stakeholders in rice cultivation around the world, its benefits confirmed in over60 countries, thanks to the efforts of individuals, civil society organizations, research institutions, and colleagues in the government and private sectors who have spread the new knowledge throughout the rice world.

The seeing-is-believing impact of SRI crops (FAO, 2016, p. 44 –47; Stoop, Uphoff, & Kassam, 2002; Uphoff, 2015) has led to the application of SRI principles to other crops beyond rice, and today a new paradigm of System of Crop Intensification (SCI) has emerged which improves the productivity and resilience of crops like wheat, finger millet, sugarcane, teff, mustard, etc., (with acronyms SWI, SFMI, SSI, STI, etc.), having concepts and practices in common. These are now referred to as Innovative Crop Production Systems (ICPS).

Hydrological constraints threaten future global food production. The contribution that ICPS can make to water-saving (more crop per drop) is not sufficiently realized at policy making platforms.

The Faculty of Agricultural Sciences will focus on water conservation in agriculture through ICPS concepts.

> SRMIST is organizing an International Conference on Innovative Climate-Smart Sustainable Crop Production Systems for Livelihood Security (ICPS-2019) during 19-22 December 2019 (http://www.srmist.edu.in/icps-2019/).

Introducing New Concepts in Agriculture

The Faculty of Agricultural Sciences in SRMIST is introducing novel concepts in agricultural education and research i.e. contributing to public health and agroecological set up in farms.

Contribution to Public Health

Food and food habits have tremendous effect on human health. Practicing healthy diet can lead to avoidance of both the known and the unknown health issues. But, the quality of the raw agricultural produces used to make food also plays a vital role. There is a current international trend focused on organic natural food which should be encouraged because this could be a viable solution to increase the human health. Inputs used for agricultural practices in food production and processing and value addition have impact on the quality of the food. Direct access to fruits and vegetables through kitchen garden, roof garden is one way of getting good quality food. Herbs can also be used as food supplements and using moringa leaves in different forms is becoming very popular. Awareness on the use of millets as nutritional supplement is also increasing.

Appreciating the role of agriculture in human health, the Faculty of Agricultural Sciences has embarked on herbal farming, nutri farming and urban farming as thrust areas (explained in Section C).

Another unexplored area towards public health care is spending time with plants and animals giving mind relaxation and leading to good health. Care farming is quite popular in Europe and is becoming known in other parts of the world. It is relatively unknown in India and SRMIST is proud to introduce Care farm concept.

Care farming is a form of 'Green Care' providing opportunities for those suffering from a range of health problems to spend time and working in agri/horticultural activities as a means of promoting mental and physical health and social wellbeing. It is a nature-based therapy or treatment interventions - specifically designed, structured and facilitated for individuals with a defined need by use of farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity.

There is evidence that care farming shows physical, mental and social benefits including health, physical skills, self-esteem, mood improvement, social skills, responsibility. There are proven economic benefits of care farming as a form of diversification and enhancing farmers' income. Peace of mind can be achieved by communication, creativity, activity, acceptance, solitude, connection, and contribution.

A large number of people (IT professionals, employees without job satisfaction, unemployed graduates, corporate, housewives, poor and income) have mental stress in various degrees. There are a number of patients with psychiatric problems, autism, dementia, physical disabilities etc., who require special care. Urbanization and changes in culture and lifestyle have eroded peace of mind in many people.

Target Beneficiaries

- People with an intellectual restriction.
- People with psychiatric demand.
- People working in Information Technology and other sectors.
- Young people from special education.
- Senior Citizens and Elderly with dementia.
- Long-term unemployed persons.

- Autistic persons.
- Kids and young children with special needs.

Novelty and Scope of Care Farming

Affordable Health Care for people who require health improvement without medicines, surgeries, procedures etc., by spending time with plants, animals or working in safe agricultural operations is unheard in India. This will be a medical revolution in public health especially for people who require peace of mind.

- SRMIST is **introducing care farming in India**, by establishing a Care Farm and provide green care services to people; educate professionals on care farming; and provide support to establish care farms as farm diversification and enhance farm incomes. In care farming, care of the farm is combined with care of people.

Integrated Agroecological System (IAS)

Integrated Farming System (IFS) is well known. Integrated Agroecological System (IAS) is an ecological version of IFS which includes agricultural and horticultural components not only to satisfy the benefits of IFS but also be a part of Care Farming and thus include flowers, fruits, vegetables, medicinal plants and landscaping.

A typical IAS is as follows:

Activity	Components	Species / details
Aquaculture	Fish pond	Fish; ducks; lotus; lily; Azolla
Agroforestry(different groups of trees)	Timber	Beema bamboo; Casuarina; Teak, etc.
	Medicinal	Bael; Babul; Neem; Bargad; Peepal; Arjuna; Asoka; Amla; Sandalwood, etc
	Trees	*Millingtonia hortensis* (tree jasmine); *Cassia fistula* (The Indian laburnum); *Lagerstroemia speciosa* (Pride of India); *Bauhiniasp*. (Kachar tree); *Bombax ceiba* (The silk cotton tree); *Butea monosperma* (Flame of the forest); *Erythrina variegata* (Indian coral tree); *Saraca asoca* (Sita Ashok); *Nyctanthesarbor-tristis* (Parijat)
Agriculture	Wetland crops	Rice, banana, sugarcane
	Garden land crops	Cotton, pulses, oilseeds
	Rainfed crops	Nutri millets
Horticulture	Ornamental	Landscaping

		Floriculture
	Medicinal crops	Vallarai, Ashwagnadha, Stevia etc.
	Aromatic Crops	Vettiver, Palmarosa, Lemon grass
	Nutri crops	Moringa; Curry leaf
	Vegetables	Local vegetables
	Fruit crops	Mulberry; Dragon fruit, Citrus.
Animal Husbandry	Animals	Cows; buffaloes, Country Chicken; Quail; Goat; Pigeon; Rabbit etc.,
Insects	Bee hives (Honey bees); Lac	
Cattle feed	Forage crops	Lucerne; Cumbu Napier grass, feed mixture, chopper, silage
Mushroom	Mushroom production	Oyster mushroom, button mushroom
Green belt	Tree fence	Glyricidia and Pithocelobium
Bio manure	Glyricidia; Biogas plant; biodigester, Vermicompost unit	

Models of Integrated Agroecological Systems are being established in SRM Care Farm and the Achirupakkam Campus.

University Examinations

University examinations are conducted as per rules and regulations in SRMIST. Question paper setting and practical examinations are carried out by external experts.

Encouraging Extra Curricular Activities of the Students

First year students of Horticulture were encouraged to take part in research and social activities.

Development of Plant Genetic Resources

Students actively participated in procuring local seeds of crops from their native places to help build plant genetic resources in the Faculty. Seeds of several crops including cereals, millets pulses, oilseeds, fruits and vegetables were enthusiastically collected by the students.

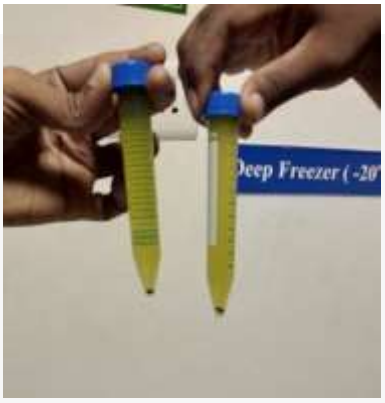
Student Research Project

Agri Virtual Grand Challenge (AgHack-2019) was conducted by Rallis India Limited, sponsored by CORTEVA, Agriculture division of DowDuPont and Co-Sponsored by Food and Agriculture centre of excellence (FACE) and Confederation of Indian Industry (CII). This programme was conducted to address the issues and challenges and exploit the potential of resources, essential to create an integrated and sustainable system of information and technologies for the sector. The program focuses on promoting the development of innovation and entrepreneurship in agriculture, especially by young people to create innovations that would empower smallholder farmers and the communities that support them. The hackathon program is designed to open to students, entrepreneurs, budding researchers and young professionals. The main objective of this hackathon was to stimulate young minds to come up with technology solutions that address these challenges and have the potential to positively impact farmers' income and overall agricultural performances.

Four students from B.Sc. (Hons.) Horticulture, Mr. R.R. Kumar, Mr. V. John, Mr. CH. Siri Vallabh and Ms. S. Priyadarshini participated as a team from the Faculty of Agricultural Sciences, SRMIST in AgHack, 2019. The research project entitled "Oxygen evolving manmade leaves using Agricultural wastes" under the theme of Crop Health. The main goal of this project was to construct an artificial tree model using manmade leaf which can able to produce O_2. A step forward to the next generation tree model can be survived in zero gravity.

The fresh crop residuals from sugarcane and potato plants are used to extract chloroplast. The protein content sericin was extracted from the silk cocoon to enhance the shelf life of chloroplast.

The project idea was submitted through online on 5th April, 2019. The team was selected as one of the top 20 teams during the 1st Screening conducted on 17th April, 2019 1800-1900 hrs (IST) and further, the team was selected for the top 10 teams after conducting the interactive session with mentors through webinar on 25th April 2019. The project video was uploaded (https://youtu.be/BMlnbqHxFSc) in the link provided AgHack on 5th May 2019. The outcome of this project was portable O_2 synthesizing ornamental tree and it can be used as an indoor plant. Utilization of waste materials like sericin from cocoon and crop residue from various crops was the benefits of this project. In near future, manmade artificial tree with O_2 synthesizing efficiency will play a major role in urban areas.



Extraction of chloroplast

Extraction of sericin from silk cocoon

Construction of tree trunk

Artificial Leaf

Milan'19 (National level cultural festival)

One of the most reputed cultural festivals and pride of SRM IST, Milan'19, was organised by Directorate of Student Affairs from March 06th – 10th 2019. Milan is a five-day fest that sets a beautiful dais for the students to enjoy and fulfil their thirst for multifarious cultural activities.

Students of B.Sc. (Hons) Horticulture actively involved and performed a mime in Milan'19. The theme for the mime was "SAVE FARMERS".

AGRON team for Mime programme at T.P. Ganesan Auditorium, SRMIST

Skill Development (Bouquet making)

The Horticulture students were given training for making bouquets and the bouquets made by them were used in the Faculty functions.

Facilities Created

In order to see the facilities available in other Agricultural Colleges, The Dean, visited the following campuses:

1. Agricultural College and Research Institute, Vazhavachanur, Thiruvannamalai.
2. Adhiparasakthi Agricultural College, Kalavai, Vellore District.
3. College of Agricultural Technology, Kullapuram, Theni District.
4. Adhiyamaan College of Agriculture & Research, Athimugam, Hosur District.

The following facilities have been created to offer the UG programmes, B.Sc. (Hons) Horticulture and, B.Sc. (Hons) Agriculture:

1. Urban Farm Centre
2. SRM Care Farm
3. Integrated Agroecological System
4. Agrometeorological Observatory
5. Drip system in the entire Gudalur Farm (18 acres)
6. Drip system in 10 acres of Achirupakkam Farm (10 acres)
7. Class rooms and laboratories
8. Laboratory Equipments
9. Farm Equipments
10. Student Transport
11. New campus

SRM URBAN FARM CENTRE

Demonstration cum Training in Urban Farming

The Urban Farm Centre under the Faculty of Agricultural Sciences, SRM IST, Kattankulathur, located at 12°49'34.6"N 80°02'55.1"E behind the Dental Canteen in an area of 1400 sq.m, is functioning from 23rd November 2018, with the prime objective to serve as an information centre for hi-tech horticulture technology and to impart training programmes on hi-tech horticulture to urban entrepreneurs, IT graduates, students, house wives and general public.

The following structures have been created for protected cultivation.

POLYHOUSE (150 sq.m)	SHADENET (78 sq.m)	MISTCHAMBER (72 sq.m)	OTHERS (Irrigation and climate control)	TOTAL (Lakh. Rs)
2.74 Lakhs	1.22 Lakhs	1.39 Lakhs	87,600	6.23 Lakhs

Training programmes schedule:

1	Kitchen gardening
2	Roof gardening
3	Landscape gardening
4	Indoor plants care and maintenance
5	Medicinal plants production
6	Organic production of fruits and vegetables
7	Vermicomposting
8	Composting
9	Hydroponics
10	Aquaponics
11	Vertical gardening
12	Net house gardening

Class room

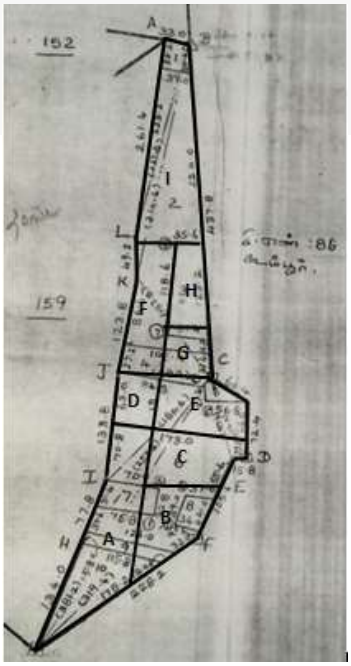
SRM CAREFARM

Affordable Agroecological Health Care

The existing Gudalur farm (18 acres) is being transformed in to SRM CARE FARM which can provide affordable agroecological health care to people who require peace of mind and mental therapy by spending time / working with plants and animals in an organic environment.

Since the farm was took over by the Faculty, the entire farm was cleaned, farm lay out finalized.

Farm layout



BLOCK	COMPONENTS
A	Mango + Vegetable intercrop
B	Integrated Agroecological System (IAS)
C	Protected Cultivation
D	Class Room + Mango
E	Fruit Crop Cafeteria Childrens' Park
F	Sapota + Mango
G	Mango
H	Field Crop Cafeteria
I	Coconut + Moringa Intercrop

The following development works have been completed:

1. Construction of class room for practicals.
2. Fencing the entire farm.
3. Cleaning of existing open wells (3 numbers).
4. Purchase of a mini tractor, shredder, brush cutter, and a tree climber.
5. Drip irrigation in the entire farm.
6. Pruning of mango, coconut trees.
7. Raising cumbu napier grass as intercrop in coconut.
8. Contract farming of moringa in 3 acres.
9. Manuring all fruit and coconut trees.
10. Coconut tonic to coconut trees.
11. Establishment of fish pond.
12. Establishment of animal components (cow, goat, rabbit, poultry, duck) with sheds.

Coconuts and mango harvested from the farm are sold to the staff of SRMIST and also supplied to the hostel.

Testing the Soil and Well water

Soil samples and water samples from the three open wells were taken and tested for their characteristics. Management of soils for different crops will be decided based upon the soil test values

Soil Test Report								
S.No.	**Particulars**	**Soil - 1**	**Soil - 2**	**Soil - 3**	**Soil - 4**	**Soil - 5**	**Soil - 6**	**Ideal Values**
1	pH	6.6	6.6	6.6	6.7	6.8	6.6	6.5 to 7.2
2	EC dSm^{-1}/cm	1.15	0.70	0.42	0.67	1.70	0.76	1.0 – 1.5
3	Texture	c.Loam	c.Loam	s.Clay	s.Clay	Clay	Clay	Loam
4	Organic Carbon	0.32	0.34	0.30	0.38	0.63	0.44	0.50 – 0.75
5	Available Nitrogen	128	134	127	139.4	168.2	148.2	150 - 160
6	Available Phosphorus (ppm)	23.2	26.2	29.2	28.2	42.2	39.2	15 - 25
7	Available Potash (ppm)	116	117	116	138	168.2	152.3	150 - 175
8	Available Magnesium (ppm)	17.2	16.2	17.2	19.2	19.8	17.2	25 - 30
9	Available Calcium (ppm)	310	314	318	310	285.2	284.4	250 - 300
10	Available Sulphur (ppm)	10.2	9.4	9.8	12.4	17.4	15.2	20 - 25
11	Available Zinc (ppm)	0.34	0.36	0.41	0.42	0.68	0.54	0.65 – 0.70
12	Available Iron (ppm)	2.82	2.92	2.68	2.94	3.20	3.0	2.5 – 3.0
13	Available Boron (ppm)	0.50	0.40	0.42	0.52	0.68	0.42	0.5 – 0.6
14	Available Manganese	4.42	4.8	4.3	3.2	4.2	3.20	3.5 – 4.5
15	Water holding capacity %	48.2	44.4	46.2	47.2	52.2	50.2	45%
16	Bulk Density	1.2	1.32	1.30	1.28	1.21	1.28	

Well water quality

G1- near the banana field/the first well from the entrance
G2- near the office building/in the middle of the farm
G3- near the coconut field/ located last in the farm

Parameter	Well G1	Well G2	Well G3
pH (dSm/cm)	6.7	6.9	6.7
Electrical Conductivity (meq/litre)	1.09	1.74	1.07
Magnesium (meq/litre)	1.31	1.41	1.30
Calcium (meq/litre)	3.3	6.8	3.4
Sodium (meq/litre)	2.8	2.6	2.9
Chloride (meq/litre)	6.2	8.2	5.2
Sulphate (meq/litre)	0.12	0.14	0.08
Bicarbonate (meq/litre)	0.0	0.5	0.0
Carbonate (meq/litre)	0.0	0.0	0.0

Practical classes for students

The farm is being used to conduct practical classes for different courses as an instruction farm.







Integrated Agroecological System

Moringa Contract Farming

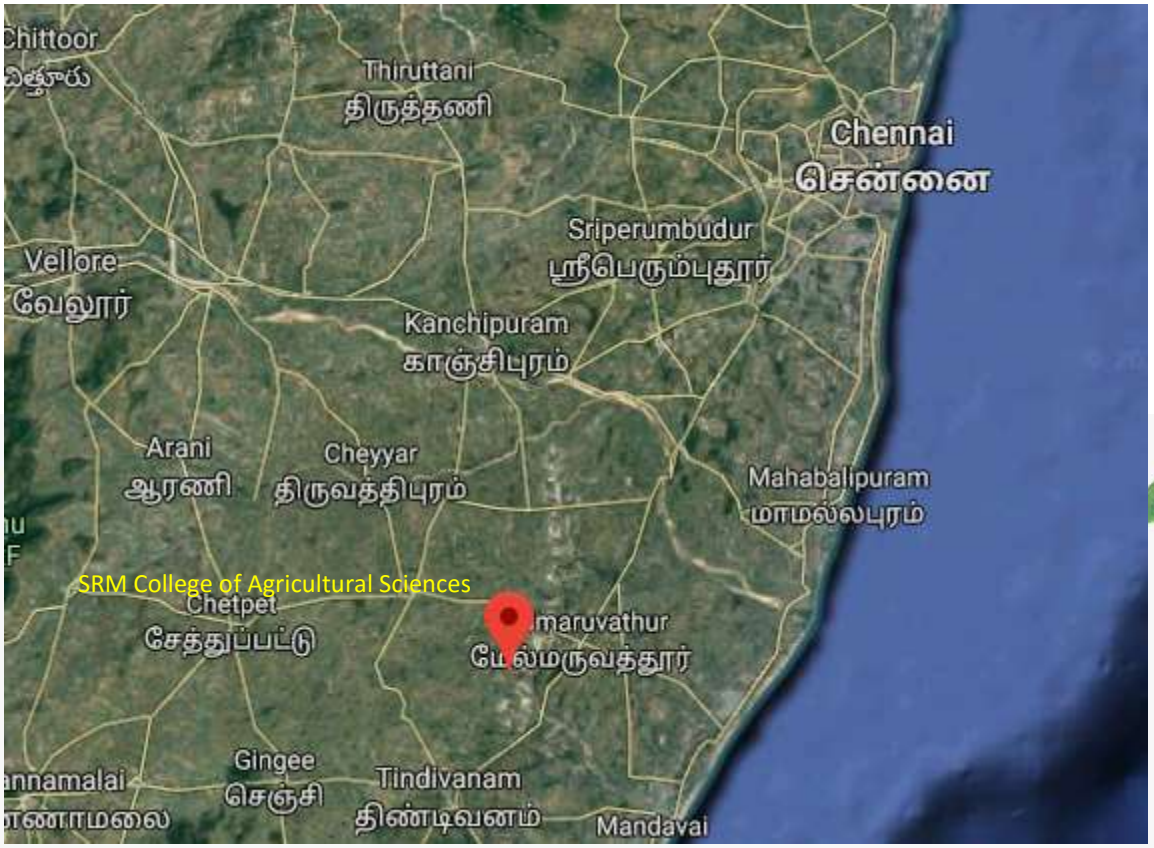
An agreement has been signed with Asiann Organics, Coimbatore, a company incorporated under the Companies Act 1956, and having its registered office at No. 135/1, Peedampalli Village, Pappampatti Main Road, Coimbatore - 641016, Tamil Nadu, India, Coimbatore, Tamil Nadu 641016 mainly engaged in the processing and export of Organic Moringa leaves and in brine form for all purposes and for this purpose has its factory and processing facilities at Coimbatore.

Under this agreement, organic moringa will be cultivated in 3.0 acres in the SRM Care Farm, Gudalur, as an intercrop in coconut garden. The technical know-how and organic inputs will be supplied by Asiann Organics under the buy-back agreement. Moringa leaves will be harvested every 45 days and handed over at the farm gate.

To understand the experience of the contract farming with farmers, the Dean, FAS visited a farm near Coimbatore and another one near Palani.

SRM College of Agricultural Sciences

The agricultural campus is being developed near Achirupakkam in about 180 acres of land. The Instructional Farm will be developed in 58 ha including orchards, experimental plots, etc.



Water Resources Development

Ground water survey was taken up by engaging a geo-consultant and the report is being used for digging Borewells and open wells at the sites recommended by the geologist.

Two Borewells have been dug and water is being pumped now. The three existing wells are cleaned and one is deepened.

Drip irrigation has been installed for the coconuts in 10-acre land.

Consultation on developing horticultural components

Dr. Kumar, former Dean (Horticulture) and presently Vice Chancellor, Tamil Nadu Agricultural University was engaged as a consultant to study the Achirupakkam site and Gudalur farm and recommend suggestions for creating horticulture components. The report is being used as a resource base.

Soil testing

Soil samples were collected from the surface as well as from 7 profiles and tested for their basic characteristics.

Land Development

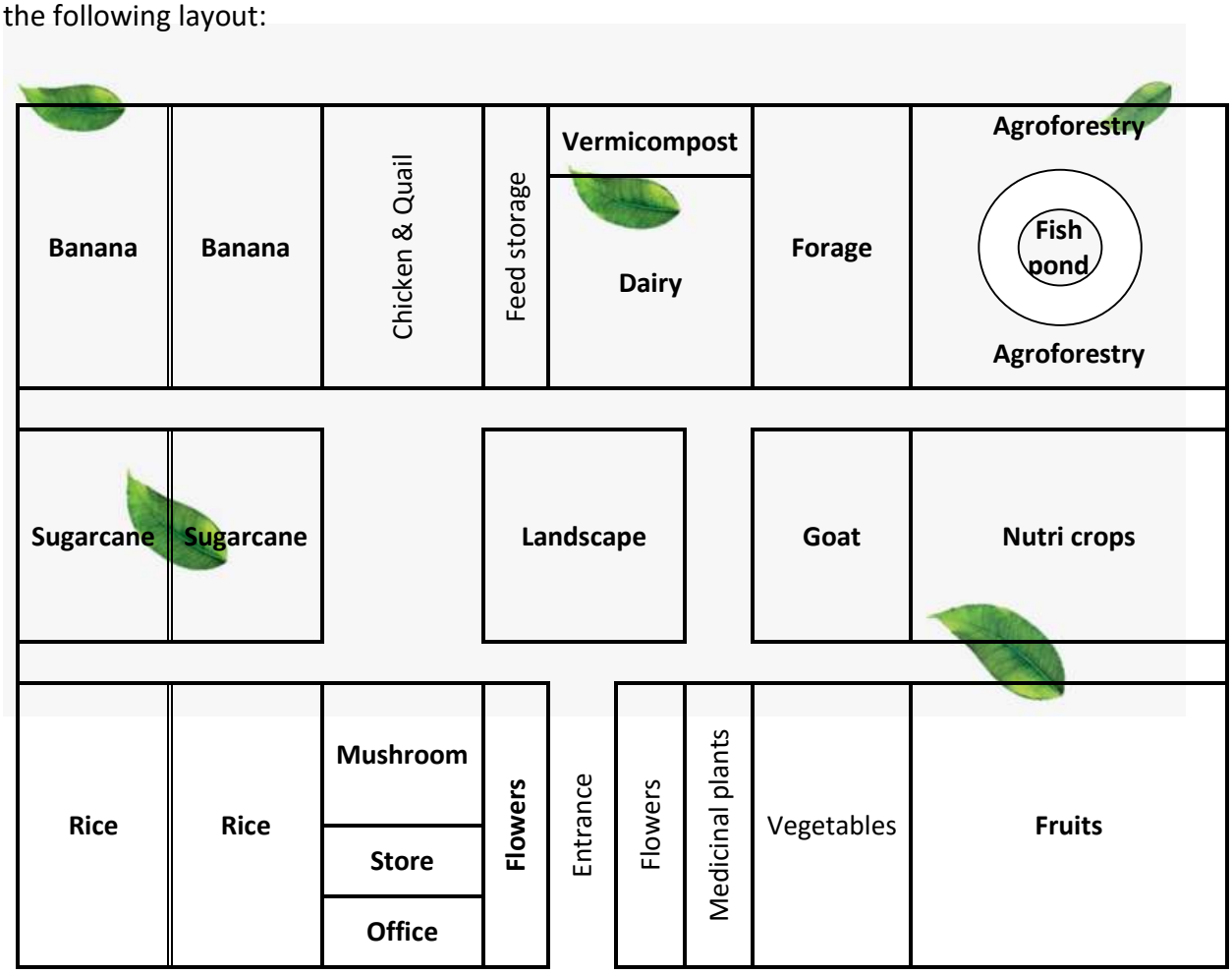
About 25 acres of land belonging to the local temple are located in between the lands of SRMIST. In order to have contiguous area, District administration has been requested to transfer these lands to SRMIST by exchanging similar area. The request has been considered favourably and the preliminary revenue processes have been completed and orders are expected.

The entire farm area has been cleared from unwanted shrubs and debris and frequent ploughing has been taken up.

A new JCB has been acquired and is being used to create farm ponds in various locations.

Glyricidia have been planted near the fences to augment green manure. About 1500 palmyrah seedlings are being raised for planting inside the farm.

The Integrated Agroecological System is being developed in 07 acres land inside the farm with the following layout:



Agrometeorological Observatory

An agrometeorological observatory is being set up in 18 cents within the campus in consultation with the Regional Director, India Meteorological Department, Chennai. The following equipment's have procured at a cost Rs. 6.5 lakhs and installation are under progress.

S.No.	Particulars/ description	Quantity	Rate / Equipment	Total Cost (Rs.)
1.	Sun shine recorder	1	36,775	36,775
2.	Sun shine record cards (3 years)	3	2,067.50	6202.50
3.	Cup Anemometer	1	14,410	14,410
4.	Wind vane	1	8,640	8,640
5.	DEW GAUGE	1	7,332	7,332
6.	Single Stevenson's screen with stand	1	27,542	27,542
7.	Maximum thermometer	2	5259	10,518
8.	Minimum thermometer	2	5259	10,518
9.	Wet bulb thermometer	2	4864	9,728
10.	Dry bulb thermometer	2	4864	9,728
11.	Double Stevenson's screen with stand	1	35,445	35,445
12.	Thermo Hygrograph (weekly)	1	28,415	28,415
13.	Pen for thermo-hygrograph	1	1,152	1,152
14.	thermo-hygrograph charts	1	582.50	582.50
15.	Aneroid barometer (Analog)	1	5,675	5,675
16.	Ordinary rain gauge	1	4,880	4,880
17.	Measuring cylinder (200cm^2)	1	2,625	2,625
18.	Self-recording rain gauge (SRG)	1	22,692	22,692
19.	Weekly chart for SRG	3	507	1,251
20.	Open pan evaporimeter (Copper)	1	49,741	49,741
21.	Soil thermometer - 5 cm	2	4679	9,358
22.	Soil thermometer - 10 cm	2	5182.50	10,365
23.	Soil thermometer - 15 cm	2	5059	10,118
24.	Soil thermometer - 20 cm	2	5249	10,498
25.	Soil thermometer - 30 cm	2	5657.50	11,315
26.	Iron stand for soil thermometer	5	1217.5	6,087.50
27.	Grass minimum thermometer	2	5367.5	10,735
28.	Automatic weather station	1	2,26,350	2,26,350

Buildings

Construction of administrative, academic and residential buildings have been taken up and the work is under progress.

Category	Components in Phase 1	Area (Sq. Ft)
Residential	Hostels, dining blocks & staff quarters	2,61,765
Academics	Administrative, academic, and laboratory blocks	3,69,912
TOTAL		**6,31,677**


SRM COLLEGE OF AGRICULTURAL SCIENCES
PROPOSED CAMPUS FOR SRM COLLEGE OF
AGRICULTURAL SCIENCES (SRM-CAS) ACHIRUPAKKAM


PROPOSED CAMPUS FOR
SRM COLLEGE OF AGRICULTURAL SCIENCES (SRM-CAS) ACHIRUPAKKAM

Tree Transplanting

Mango trees which existed before the construction work started have been transplanted in another area of the farm and most of them have survived.

Honourable Vice Chancellor visiting the site

Class Room and Laboratories

A class room (40 seats) was created in the Urban Farm Centre with LCD projector to conduct theory classes, special lectures and examinations. Classes were also conducted in University Building.

A class room (40 seats) has been created in the SRM Care Farm for conducting field oriented practical classes. Another class room in thatched shed is being created.

Five class rooms and four laboratories have been created in the first and second of SRM Polytechnic College to conduct theory and practical classes for the students of agriculture and horticulture during the academic year 2019-20. Equipment's required have been acquired and installed in the laboratories.

The list of equipment's available are as follows:

S. No.	Name	Quantity (No.)	Price (Rs)
1.	Laminar air flow chamber	1	62000
2.	Autoclave	1	148750
3.	Hot air oven	2	235840
4.	Incubator (5°C - 50°C)	1	42940
5.	Refrigerators	3	65100
6.	Refrigerated centrifuge	3	730008
7.	Student microscope	40	698250
8.	Fluorescent microscope	1	196563
9.	Water bath	1	48000
10.	Binocular microscope	2	40800
11.	Electronic weighing balance(1 mg)	1	8750
12.	Colorimeter	1	18797
13.	Magnetic stirrer	3	38628
14.	pH meter and EC meter	3	62364
15.	Microwave oven	3	44730
16.	Distillation unit	2	22400
17.	Core sampler	2	12000
18.	Soil Auger	5	69620

19.	Weighing balance (mg and g)	4	24000
20.	Water bath	2	9000
21.	Tripod stand	10	1500
22.	UV Spectrophotometer	2	720036
23.	Flame photometer	1	42000
24.	Sieve (2, 0.2 mm)	10 each	42400
25.	Munsell soil colour chart	1	24000
26.	Soil thermometer	1	49555
27.	Desiccator	2	8000
28.	Wire mesh/gauze	40	300
29.	Mechanical shaker (50 nos. unit)	1	34000
30.	Chlorophyll meter (SPAD meter)	1	190000
31.	LUX meter	1	2596
32.	Leaf area meter	1	50000
33.	Stereo microscope	5	533581
34.	Ocular meter	5	2813
35.	Stage Micrometre	5	6163
36.	Camera Lucida	2	9440
37.	Colony Counter	2	8850
38.	Humidifier	1	28000
39.	Colour transparencies of different body parts	1	49432
40.	Power and hand operated sprayer	1 each	17228
41.	Dusters (Plunger, Bellow, Rotary, Power)	2	20640
42.	Potters Tower	1	5000
43.	Light traps	1	600
44.	Fumigation Chamber	1	75000
45.	Soxhlet Extraction Apparatus	1	6700
46.	Bee keeping equipment (set)	2	8400

Students Counselling

Students have grouped in to different wards and each ward is attached to a teacher. Ward council meetings are scheduled every week to discuss various academic and campus life issues.

The Dean meets the students quite frequently and interacts with them on their progress with the studies and their concerns if any are addressed immediately. What's App group connects the students with the Dean and all teachers. Two-way messages are enabled to communicate academic and campus life issues.

Parents Counselling

Interaction with parents along with the students by the Dean is held to assess the parents' awareness on the progress of the studies as well the concerns of the parents. Parents are encouraged to call the Dean and teachers in this regard.

Practical Classes

Practical classes are conducted in the laboratories, Urban Farm Centre and SRM Care Farm. Some are conducted out door.









Faculty Improvement

Two staff members were deputed for short training programs. Ms. Kalaivani, Farm Supervisor, Acharapakkam underwent a training on "Zero Budget Natural Farming (ZBNF)" organized at Tiruchirappalli by Isha Movement. She was one of the nearly 3,000 trainees. Ms. Kanimozhi, Tutor in Horticulture was deputed for a training on aquaponics.

Four staff members were given training on ERP at ITKM, SRMIST.

Zero Budget Natural Farming (ZBNF**)**, which is a set of farming methods, and also a grassroots peasant movement, has spread to various states in India by a movement spearheaded by Mr. Subhash Palekar. As the Achirupakkam campus is being developed as a natural farm, Ms. Kalaivani was deputed to undergo the training. After the training she made a presentation to the staff and students of the Faculty. She has started to apply the knowledge obtained in using natural products for plant nutrition and protection.

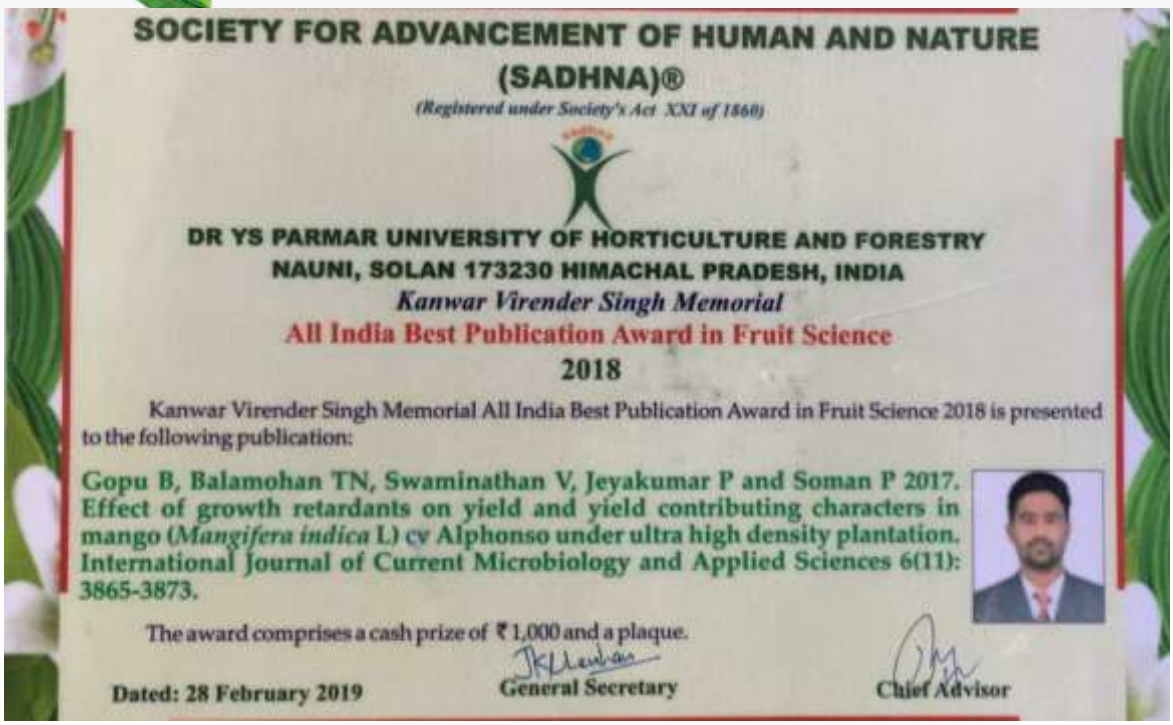
Ms. Kanimozhi, Tutor in Horticulture was deputed for a two days training program on Aquaponics, conducted by Gratitude Farms at Sharanam, a Pristine Residential Training Facility near Lake Ousteri, Pondicherry, held on 30th -31st March 2019.

The objective of attending the training was to understand the science and techniques behind the ultra-efficiency system of Aquaponics; to get introduced to commercial- scale Aquaponics food production systems and their current challenges and to gain knowledge and to be able to design, set-up and operate a domestic – scale Aquaponics system at the Urban Farm centre, SRM-IST.

Faculty Recognition

Dr. S. Senthilkumar, Assistant Professor in Horticulture, Faculty of Agricultural Sciences received 'Excellence in Research Award' during the scientific conference on Global Research Initiatives for Sustainable Agriculture & Allied Sciences (GRISAAS-2018) held at Rajasthan Agricultural Research Institute, Durgapura (Jaipur- Rajasthan) on 29thOctober 2018. The award was presented for his contributions in the field of Pomology and his research activity for developing altered approach in promoting the banana production of cv. Grand Naine under severe winter conditions in the Subtropics.

Dr. B. Gopu, Assistant Professor in Horticulture, Faculty of Agricultural Sciences received "Kanwar Virender Singh Memorial Award in Fruit Science" for the year 2018, from the Society for Advancement of Human and Nature (SADHANA), Solan, Himachal Pradesh, in appreciation of his contribution in the field of fruit science and his research activity towards increasing yield and quality of mango through crop regulation techniques under high density planting.The Award comprises of a cash prize of Rs.1000 and a Plaque.



SOCIETY FOR ADVANCEMENT OF HUMAN AND NATURE
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DR YS PARMAR UNIVERSITY OF HORTICULTURE AND FORESTRY
NAUNI, SOLAN 173230 HIMACHAL PRADESH, INDIA
Kanwar Virender Singh Memorial
All India Best Publication Award in Fruit Science
2018

Kanwar Virender Singh Memorial All India Best Publication Award in Fruit Science 2018 is presented to the following publication:

Gopu B, Balamohan TN, Swaminathan V, Jeyakumar P and Soman P 2017. Effect of growth retardants on yield and yield contributing characters in mango (*Mangifera indica* L) cv Alphonso under ultra high density plantation. International Journal of Current Microbiology and Applied Sciences 6(11): 3865-3873.

The award comprises a cash prize of ₹ 1,000 and a plaque.

Dated: 28 February 2019 General Secretary Chief Advisor

Research & Collaboration

Staff in the Faculty are encouraged to work on research projects and submit proposals for external funding. The following is the list of projects proposed during the period 2018-19.

S.No	Title	Investigator(s)	Submitted to	Status
1	Health, social and specialist educational care for individuals with specific health problems by green care through Care farm Services	Dr. Thiyagarajan, TM Dr. Gopu, B	SPARC, Govt. of India	Unsuccessful
2	Isolation and characterization of heat stress tolerant rice for climate smart agriculture.	Dr. Selvakumar, G	Science and Engineering Research Board (SERB)	Submitted
3	Mapping climate adaptation and grain nutrients traits for accelerated foxtail millet improvement			Submitted
4	Artificial intelligence approaches for abiotic stress forecasting and developing crop ideotypes for elevated carbon dioxide interaction with heat and soil sodicity stress environments	Dr. Partheeban, C Dr. Selvakumar, G		Submitted
5	Using brown rice for addressing the double-burden of malnutrition in South India (Joint project -Mohan Diabetics Research Foundation, Samarth NGO, SRM IST, Harvard University, University of Aberdeen))	Dr.T.M. Thiyagarajan	Global Challenges Research Fund Networking Grant: The Academy of Medical Sciences	Submitted

Several initiatives have been taken to collaborate with national and international Institutes as well as agribusiness companies.

Extension

As part of supporting the farmers of the in Kancheepuram district, extension activities are also being taken up by the Faculty of Agricultural Sciences. The activities will expand when the college becomes functional in Achirupakkam.

Organic farming

Shredding and composting coconut trees felled by Gaja cyclone

It is planned to support the farmers in the state through Agricultural Rural Development Centres in different districts.

Conferences / Workshops

The Faculty has plans for organizing conferences / workshops on different themes.

Workshop

A workshop on "Agricultural Informatics and Agriprenuers Skill Development" was organized by the Faculty of Agricultural Sciences, SRM Institute of Science & Technology, Kattankulathur on 14th September, 2018.

Dr.T.M. Thiyagarajan, Dean, Faculty of Agricultural Sciences, SRMIST welcomed the gathering. Mr. Chandra Challagonda, CEO, APInf Oy, Finland delivered a speech on "APINF and Intelligent Agriculture". A memorandum of Understanding (MOU) between SRMIST and APInf Oy was signed by the Registrar, SRMIST and CEO of APInf Oy, Finland.

Honorable Chancellor of SRMIST inaugurated the workshop and delivered the inaugural address. Prof. Moni Madaswamy, Former Director General, NIC, GOI, New Delhi delivered the chief guest address. His speech was focused on preparing about 100,000 Agricultural Students, through agricultural informatics, for undertaking the Science and Technology based agricultural development and to rejuvenate and usher in agricultural dynamism in the country, by 2022. The Pro-Vice Chancellor (External Affairs); The Director (Finance); Prof Mr. M.V. Ashok, Former Chief General Manager, NABARD & TATA Chair Professor, Tata Institute of Social Sciences, Mumbai; Mr. Anurag Agnihothri, Vice President (India & South Asia), APInf Oy; Mr. Kanagaraj, MD, AHIMSA; and Ms. Rajalakshmi Nirmal, Deputy Editor, The Hindu Business Line; Mr. Anand Babu, Co-founder of Jayalaxmi Agro Tech, Bellary, Ms. Sai Gole, CEO & CoFounder, LeanAgri Solutions also graced the occasion.

Mr. Ezhilvel, Director, Information Technology & Knowledge Management, Dr. G. Vadivu, Department of Information Technology, College of Engineering & Technology, Dr. S. Kanchana, Department of Computer Science, Faculty of Science & Humanities participated in the workshop and delivered their presentations on information Technology. Ms. K. Srinadhi, II-year B.Tech (Aerospace) student, Faculty of Engineering & Technology, SRMIST presented about the "Applications of Aerospace Technologies in Agriculture". The workshop was concluded with the vote of thanks from Dr. S. Senthilkumar, Assistant Professor, Faculty of Agricultural Sciences, SRMIST.

International Conference

An International on "Innovative Climate-Smart Sustainable Crop Production Systems for Livelihood Security (ICPS-2019)"is being organized by the Faculty of Agricultural Sciences and National Consortium on SRI (NCS) during 19-22 December 2019 in the Kattankulathur campus. The conference is jointly sponsored by SRM Institute of Science & Technology, National Consortium on SRI (NCS), The Society for Advancement of Rice Research (SARR), National Bank for Agriculture and Rural Development (NABARD), SRI International Network and Resources Centre (SRI-Rice), Asian Centre of Innovation for Sustainable Agriculture Intensification (ACISAI), National Academy of Agricultural Sciences (NAAS), Professional Assistance for Development Action (PRADAN*)* and People's Science Institute (PSI).

Themes of the Conference

1. Experiences and empirical evidence on refining the understanding of SRI
2. Experiences with extending SRI concepts to other crops (sugarcane, wheat, pulses, oilseeds, nutri crops, vegetables etc.) and other systems (conservation agriculture, ZBNM, etc.)
3. Socio-economic analyses of ICPS regarding food, nutrition and livelihood security, gender equity, and labour issues
4. Role and contribution of ICPS towards improving agroecosystems, climate-resilience, and soil and human health.
5. Experiences and challenges on scaling-up of ICPS

There will be panel discussions on the way forward for upscaling ICPS to address the Sustainable Development Goals; investments in human capital by inclusion of ICPS in course curricula; policy advocacy at multiple levels; ready-to-consider project proposals on research, education and extension of ICPS, followed by a Conference declaration.

Venue: Dr. T.P. Ganesan Auditorium, SRM Institute of Science and Technology (Deemed University), Kattankulathur 603-103, India (near Chennai) - visit www.srmist.edu.in.

More info:http://www.srmist.edu.in/icps-2019/

Student Transport

Two buses have been acquired to transport students for travelling to SRM Care Farm for practicals and also for exposure visits.

Social Activities

Women's Day

Staff Birth Day

Tree planting in Kattankulathur campus

Deepavali Gift to Farm Staff by the Management

Participation of Horticulture students in cyclone relief work in Pudukkottai District along with the Chancellor

Revenue Generation

The farm produces from SRM Care farm and Achirupakkam farm are sold at the Urban Farm Centre to the staff and also supplied to the hostel and SRM Hotel.

Product	Quantity	Amount (Rs)
Mango	5764 kg	2,74,045
Coconut	3,225 nos.	43,019
Coconut oil	16 lit	4,150
Tender coconut	120 nos.	2,025
Papaya	88 kg	2,235
Supplies to hostel	-	80,580
Farm wastes	-	80,000
Total		**4,86,054**

Revenue generation through contract farming of moringa and commercial cultivation of vegetables will be realised next year.

Annexure I Comparison of courses recommended by ICAR and adopted in SRMIST – B.Sc. (Hons) Agriculture

S.No	ICAR			SRM IST		
	Discipline	**Course Title**	**Credits**	**Discipline**	**Course Title**	**Credits**
1	**Agronomy**	Fundamentals of Agronomy	3+1	**Agroecology**	Principles of Agronomy	2+1
2		Introductory Agro-meteorology & Climate Change	1+1		Agricultural Meteorology and Climate Change	1+1
3		Crop Production Technology – I (*Kharif* crops)	1+1		Agronomy of Cereal, Pulse and Oilseed Crops	1+1
4		Crop Production Technology – II (*Rabi* crops)	1+1		Agronomy of Fibre Crops, Sugarcane, Forage Crops and Green Manures Crops	1+1
5		Farming System & Sustainable Agriculture	1+0		Farming System and Sustainable Agriculture	1+0
6		Practical Crop Production - I *(Kharif* crops*)*	0+2		Hands on Crop Production Technology(Cereal, Pulse and Oilseed Crops)	0+1
7		Practical Crop Production - II *(Rabi* crops*)*	0+2		Hands on Crop Production Technology(Fibre Crops, Sugarcane, Forage Crops and Green Manures Crops)	0+1
8		Principles of Organic Farming	1+1		Organic Farming	1+1
9		Geoinformatics and Nanotechnology and Precision Farming	1+1	**Natural Resource Management**	Geoinformatics and Nanotechnology	1+0
10		Rainfed Agriculture & Watershed Management	1+1		Dry Land Agriculture and Watershed Management	1+1

11	**Genetics &Plant Breeding**	Fundamentals of Genetics	2+1	**Genetics &Plant Breeding**	Principles of Genetics and Cytogenetics	2+1
12		Principles of Seed Technology	1+2		Principles of Seed Technology	1+1
13		Fundamentals of Plant Breeding	2+1		Methods of Plant Breeding	2+1
14		Crop Improvement-I (*Kharif* crops)	1+1		Breeding of Field Crops	2+1
15		Crop Improvement-II (*Rabi* crops)	1+1		Breeding of Major Horticultural Crops	2+1
16	**Soil Science & Agricultural Chemistry**	Fundamentals of Soil Science	2+1	**Natural Resource Management**	Fundamentals of Soil Science	2+1
17		Problematic soils and their Management	2+0		Problematic Soils and their Management	1+0
18		Manures, Fertilizers and Soil Fertility Management	2+1	**Crop Health**	Manures, Fertilizers and Soil Fertility Management	2+1
19				**Natural Resource Management**	Principles of Weed Management and Irrigation Management	2+1
					Soil, Water and Plant Analysis	1+1
21	**Entomology**	Fundamentals of Entomology	3+1	**Crop Health**	Fundamentals of Entomology	2+1
22		Pests of Crops and Stored Grain and their Management	2+1		Pest Management in Field Crops and Stored Grains	2+1
23					Pest Management in Horticultural Crops	2+1
24		Management of Beneficial Insects	1+1	**Agroecology**	Beneficial Insects and Principles of Integrated Pest and Disease Management	2+1

25	**Agricultural Economics**	Fundamentals of Agricultural Economics	2+0		fundamentals of agricultural economics	1+1
26		Agricultural Finance and Co-Operation	2+1		Agricultural Finance and Cooperation	2+1
27		Agricultural Marketing Trade & Prices	2+1		Agricultural Marketing, Trade and Prices	2+1
28		Farm Management, Production & Resource Economics	1+1	**Agricultural Social Sciences**	Farm Management, Production and Resource Economics	1+1
29	**Agricultural Extension and Communication**	Fundamentals of Agricultural Extension Education	2+1		Fundamentals of Agricultural Extension Education	1+1
30		Rural Sociology & Educational Psychology	2+0		Rural Sociology and Educational Psychology	2+0
31		Entrepreneurship Development and Business Communication	1+1		Agripreneurship Development and Agribusiness Management	1+1
34		Communication Skills and Personality Development	1+1	**Skill Education**	Communication Skills and Personality Development	1+1
35	**Agricultural Engineering**	Soil and Water Conservation Engineering	1+1		Fundamentals of Soil and Water Conservation Engineering	1+1
36		Farm Machinery and Power	1+1	**Agricultural Engineering**	Farm Power and Machinery	1+1
37		Renewable Energy and Green Technology	1+1		Renewable Energy and Green Technology	1+1
38		Protected Cultivation and Secondary Agriculture	1+1		Precision Farming and Secondary Agriculture	1+0

39	**Plant Pathology**	Fundamentals of Plant Pathology	3+1	**Crop Health**	Fundamentals of Plant Pathology	2+1
40		Diseases of Field and Horticultural Crops and their Management-I	2+1		Diseases and Nematode Management in field crops	2+1
41		Diseases of Field and Horticultural Crops and their Management-II	2+1		Diseases Management in Horticultural Crops	2+1
42		Principles of Integrated Pest and Disease Management	2+1			
43	**Horticulture**	Fundamentals of Horticulture	1+1	**Horticulture**	Fundamentals of Horticulture	1+1
44		Production Technology for Fruit and Plantation Crops	1+1		Production Technology for Fruit and Plantation Crops	1+1
45		Production Technology for Vegetables and Spices	1+1		Production Technology for Vegetables and Spices	1+1
46		Production Technology for Ornamental Crops, MAP and Landscaping	1+1		Production Technology for Ornamental, Medicinal, Aromatic Crops and Landscaping	2+1
47		Post-harvest Management and Value Addition of Fruits and Vegetables	1+1		Post-harvest Management and Value Addition of Fruits and Vegetables	1+1
48	**Food Science & Technology**	Principles of Food Science & Nutrition	2+0		Principles of Food Science and Nutrition	1+1

49	**Biochemistry / Physiology / Microbiology/ Environmental Sciences**	Fundamentals of Plant Biochemistry and Biotechnology	2+1	**Crop Health**	Introduction to Plant Biochemistry	1+1
50					Introduction to Agricultural Biotechnology	1+1
51		Fundamentals of Crop Physiology	1+1		Introduction to Crop Physiology	2+1
52		Agricultural Microbiology	1+1	**Agroecology**	Introduction to Microbiology	2+1
53					Soil and Applied Microbiology	1+1
54		Environmental Studies & Disaster Management	2+1		Environmental Studies and Disaster Management	2+1
55		Introduction to Forestry	1+1		Introduction to Agro Forestry	1+1
56	**Statistics, Computer Application and I.P.R.**	Statistical Methods	1+1	**Mathematics**	Elementary Statistics	1+1
57		Agri- Informatics	1+1	**Skill Education**	Fundamentals of Information Technology	1+1
58		Intellectual Property Rights	1+0*	**Agricultural Social Sciences**	Intellectual Property Rights	1+0
59	**Animal Production**	Livestock and poultry Management	3+1	**Agroecology**	Introduction to Livestock and Poultry Production	1+1
60	**Language**	Comprehension & Communication Skills in English	1+1			
61	**Remedial Courses**	Agricultural Heritage	1+0	**Agroecology**	Introduction to Agroecology	2+0
62		Introductory Biology	1+1	**Genetics & Plant Breeding**	Botany of field crops	2+1
63		Elementary Mathematics	2+0	**Mathematics**	Elementary Mathematics	1+1

64	**Non-Gradial Courses**	NSS/NCC/Physical Education & Yoga Practices	0+2*	**Physical and health education**	NSS/NCC	0+1
65					Physical Education*	0+1
66		Human Values & Ethics	1+0*		Yoga, Human Values and ethics Management	0+1
67	**Educational Tour**	Educational Tour	0+2*	**Agroecology**	Study Tour – I	0+1
68					Study Tour – II	0+1
					All India Study Tour	0+2
69	**Student READY**	Student READY – Rural Agricultural Work Experience and Agro-Industrial Attachment (RAWE & AIA)	0+20	**Student READY**	Student READY – Rural Agricultural Work Experience and Agro-Industrial Attachment (RAWE & AIA)	0+20
70	**Skill Development and Entrepreneurship**	Experiential Learning Programme	0+20		Experiential Learning Programme	0+20
71					Project Work	0+1
72	**Optional**	Elective Course	2+1 2+1 2+1		Elective Optional	2+1
TOTAL (Non gradial of 2+4 credit not counted)			**178**			**184**

Annexure II Comparison of courses recommended by ICAR and adopted in SRMIST – B.Sc.(Hons) Horticulture

S.No.	ICAR			SRM IST		
	Discipline	**Course Title**	**Credit**	**Discipline**	**Course Title**	**Credit**
1.	**Fruit Science**	Fundamentals of Horticulture	2+1	**Horticulture**	Fundamentals of Horticulture	2+1
2.		Plant Propagation and Nursery Management	1+1		Propagation of Horticultural Crops	2+1
3.		Tropical and Subtropical Fruits	2+1		Production Technology of Tropical and Arid Zone Fruit Crops	2+1
4.	**Vegetable Science**	Tropical and Subtropical Vegetable crops	2+1		Production Technology of Tropical Vegetable Crops	2+1
5.		Spices and Condiments	2+1		Production Technology of Spices	1+1
6.	**Floriculture & Landscape Architecture**	Ornamental Horticulture	1+1		Ornamental Horticulture	1+1
7.	**Postharvest Technology**	Fundamentals of Food Technology	1+1		Fundamentals of Food Technology, Processing and Value Addition of Horticultural Produces	2+1
		Processing of Horticultural Crops	1+2			
8.	**Fruit Science**	Orchard and Estate Management	1+1		Hands on Orchard Management	0+1
9.		Dryland Horticulture	1+1		Dryland Horticulture	1+1

10.					Study Tour - II	0+1
11.	**Fruit Science**	Breeding of Fruit and Plantation Crops	2+1		Botany of Horticultural Crops	1+1
12.	**Vegetable Science**	Breeding of Vegetable, Tuber and Spice Crops	2+1		Breeding of Horticultural Crops	2+1
13.		Temperate Vegetable Crops	1+1		Production Technology of Subtropical and Temperate Vegetable Crops	2+1
14.	**Fruit Science**	Plantation Crops	2+1		Production Technology of Plantation Crops	1+1
15.	**Floriculture & Landscape Architecture**	Commercial Floriculture	2+1		Production Technology of Commercial Flower Crops	2+1
16.	**Vegetable Science**	Potato and Tuber Crops	1+1		Hands on Vegetable Crop Production	0+1
17.	**Floriculture & Landscape Architecture**	Medicinal and Aromatic Crops	2+1		Production Technology of Medicinal and Aromatic Crops	1+1
18.		Principles of Landscape Architecture	1+1		Landscape Gardening and Greenbelt Management	1+1
19.	**Vegetable Science**	Seed Production of Vegetable, Tuber and Spice Crops	2+1		Fundamentals of Seed Production and Quality Control in Horticultural Crops	2+1

20.	**Fruit Science**	Temperate Fruit crops	1+1		Production Technology of Sub-tropical and Temperate Fruit Crops	2+1
21.	**Vegetable Science**	Precision Farming and Protected Cultivation	2+1		Precision Farming and Protected Cultivation	2+1
22.	**Postharvest Technology**	Postharvest Management of Horticultural Crops	2+1		Post Harvest Handling of Horticultural Produces	2+1
23.	**Floriculture & Landscape Architecture**	Breeding and Seed Production of Flower and Ornamental Crops	2+1		Seed Production Technology of Horticultural Crops	1+1
24.	**Fruit Science**	Principles of Genetics and Cytogenetics	2+1	**Genetics and Plant Breeding**	Principles of Genetics and Cytogenetics	2+1
25.		Principles of Plant Breeding	2+1		Methods of Plant Breeding	1+1
26.	**Natural Resource Management**	Introduction to Major Field Crops	1+1	**Agroecology**	Introduction to Major Field Crops	1+1
27.	**Basic Sciences**	Introductory Microbiology	1+1		Introduction to Microbiology	2+1
28.	**Natural Resource Management**	Agro-meteorology and Climate Change	1+1		Agricultural Meteorology and Climate Change	1+1
29.		Environmental Studies and Disaster Management	2+1		Environmental Protection and Disaster Management	2+1
30.		Introductory Agro-forestry	1+1		Introduction to Agroforestry	1+1

31.		Organic Farming	2+1		Organic Horticulture	1+1
32.					Introduction to Agroecology	1+0
					Soil and Applied Microbiology	1+1
33.	**Natural Resource Management**	Fundamentals of Soil Science	1+1	**Natural Resource Management**	Fundamentals of Soil Science	1+1
34.		Soil, Water and Plant Analysis	1+1		Soil, Water and Plant Analysis	1+1
35.		Water Management in Horticultural Crops	1+1		Water Management in Horticulture Crops	1+1
36.					Study Tour - I	0+1
					Fundamentals of Soil and Water Conservation Engineering	1+1
37.	**Basic Sciences**	Elementary Plant Biochemistry	1+1	**Crop Health**	Introduction to Plant Biochemistry	2+1
38.		Introductory Crop Physiology	1+1		Introduction to Crop Physiology	2+1
39.	**Plant Protection**	Fundamentals of Entomology	2+1		Fundamentals of Agricultural Entomology	2+1
40.		Fundamentals of Plant Pathology	2+1		Fundamentals of Plant Pathology	2+1
41.	**Basic Sciences**	Growth and Development of Horticultural Crops	1+1		Physiology of Horticultural Crops	1+1

42.	**Natural Resource Management**	Soil Fertility and Nutrient Management	1+1		Soil Fertility and Nutrient Management	2+1
43.	**Plant Protection**	Insect Pests of Fruit, Plantation, Medicinal and Aromatic Crops Insect Pests of Vegetable, Ornamental and Spice Crops	2+1 2+1		Pest Management in Horticultural Crops	2+1
44.		Diseases of Fruit, Plantation and Medicinal and Aromatic Crops Diseases of Vegetable, Ornamental and Spice Crops Nematode Pests of Horticultural Crops and their Management	2+1 2+1 1+1		Disease and Nematode Management in Horticultural Crops	2+1
45.	**Fruit Science**	Weed Management in Horticultural Crops	1+1		Weed Management in Horticultural Crops	1+1
46.	**Social Sciences**	Horti-Business Management	2+0	**Agricultural Social Sciences**	Production Economics and Horticulture Business Management	2+0
47.		Fundamentals of Extension Education	1+1		Fundamentals of Agricultural Extension	1+1
48.		Economics and Marketing	1+1 2+1		Fundamentals of Agricultural Economics	1+1 1+1

		Entrepreneurship Development and Business Management			Horticultural Marketing and Finance Management	
49.	**Plant Protection**	Apiculture, Sericulture and Lac Culture	1+1		Apiculture, Sericulture and Lac Culture	1+1
50.	**Natural Resource Management**	Farm Power and Machinery	1+1	**Supplementary Courses**	Farm Power and Machinery	1+1
51.	**Basic Sciences**	Elementary Plant Biotechnology	1+1		Introduction to Agricultural Biotechnology	1+1
52.					Introduction to Livestock and Poultry Production	2+1
53.	**Basic Sciences**	Elementary Statistics and Computer Application	2+1	**Mathematics**	Elementary Statistics	1+1
54.					Elementary Mathematics	1+1
55.	**Social Sciences**	Communication Skills and Personality Development	1+1	**Skill Education**	Communication Skills and Personality Development	1+2
56.		Information and Communication Technology	1+1		Fundamentals of Information Technology	1+1
57.					Quantitative Aptitude and Logical Reasoning	0+1
58.		Physical and Health Education (NC)	0+1*		Physical Education	0+1

59.	**Social Sciences**	NSS/NCC(NC)	0+1*	**Physical and Health Education**	National Service Scheme / National Cadet Corps	0+1
60.					Yoga for Human Excellence	0+1
61.	**Activity - STUDENT READY**	STUDENT READY - Placement in Industries	0+10	**STUDENT READY**	Student READY - RHWE, PAI, ITPHHC	0+20
62.		STUDENT READY- Placement in Villages	0+10			
63.		STUDENT READY: Experimental Learning programme	0+20		Experiential Learning - I	0+10
64.					Experiential Learning - II	0+10
65.					Project Work	0+1
66.					All India Study Tour	0+2
		TOTAL	**178**			**184**

*Non gradial of 0+2 credit not counted