

Three Day Symposium On
**Integrated Research Approaches on
Sustainable Agriculture**

April 26th – 28th, 2022

Organized by

Somaiya Institute for Research and Consultancy (SIRAC)

In collaboration with

K.J. Somaiya College of Science and Commerce (KJSSC)

SK Somaiya College (SKSC)

K.J. Somaiya College of Engineering (KJSCE)

Somaiya School of Design (SSD)

K.J. Somaiya Institute of Engineering and Information Technology (KJSIEIT)

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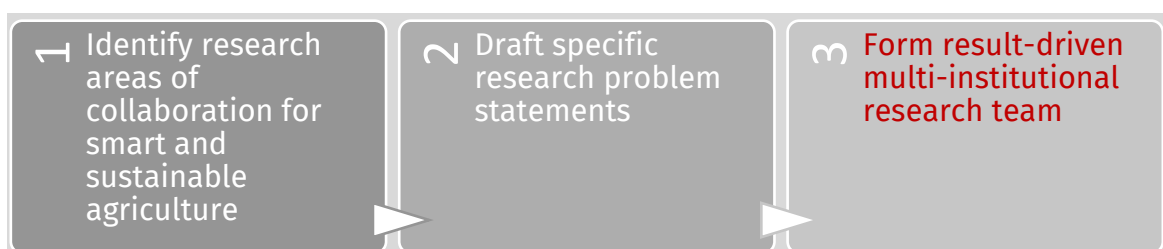
K.J. Somaiya Institute of Applied Agricultural Research (KIAAR)

Sustainable agriculture provides present food and textile needs without comprising the resources for the future. Optimal utilization of land space (Intercropping, Multicropping and crop rotation), water utilization (drip irrigation, rainwater harvest) and use of organic fertilizers (cow dung-based liquid manures, vermicomposting) are few sustainable practices that increase both soil health and farmers' wealth. Engineering and Technological interventions further help farmers with either farm management (precision agriculture), farm operations (smart agriculture), or both (Digital agriculture). Continuous dialogue between the scientific and farming community will help identify critical problems and seed solutions. Through a multidisciplinary research approach, agroecological solutions will reshape the way we farm and reap benefits.

Somaiya Vidyavihar is an educational trust that has established academic institutions in Mumbai, rural Maharashtra & Karnataka. It undertakes several teaching & learning initiatives for the benefit of the community, using education as a means of development. After six decades of its existence, multiple institutes, and tireless effort into liberating society through knowledge, the University status gave us immense freedom of possibilities. K J Somaiya Institute of Applied Agricultural Research (KIAAR), established in 1971 in the Northern Karnataka region, is a research-outreach center to create awareness and improve agronomic practices in sugarcane cultivation farmers. Their research team comprises soil scientists, plant scientists, GIS, and Remote Sensing teams. The KIAAR team is keen to collaborate with Somaiya Vidyavihar and Somaiya Vidyavihar University faculty research teams to form an active multidisciplinary team research community passionate about revolutionizing farms and farming.

This three-day symposium on "**Integrated Research Approaches on Sustainable Agriculture**" is a follow-up activity to the workshop held from March 8-10, 2022, on "Climate Smart Precision Farming for Sustainable Development and Augmenting Farmers' Income" at KIAAR. The workshop and symposium were facilitated and coordinated by Somaiya Institute for Research and Consultancy -research facilitation being their prime mandate.

This three-day symposium intends to explore education-research-outreach possibilities and



The institutions involved in this collaborative discussion and research exploration are:

About the Institute with broad area of research interest:

SIRAC **Somaiya Institute for Research and Consultancy (SIRAC)** functions as a think tank and task force to nucleate research ideas, promote, nurture, and facilitate collaborative & interdisciplinary research projects cutting across disciplines and Higher Education Institutes, Schools of Somaiya Vidyavihar and Ayurvihar. SIRAC encourages a research ecosystem through knowledge sharing, capacity building, and research promotion.

Broad area – Soil Health

- Culture-independent studies to explore microbial consortium in traditional liquid manure
- Explore possibilities for Sustainable Farmers' Income

Broad area – Agricultural tools & aids

- Product design and development of economic farming aids and devices.

KJSSC **K J Somaiya College of Science and Commerce** is one of the prominent institutions of Somaiya Vidyavihar, established in 1972 and is affiliated to Mumbai University.

The research-teaching community of this institute belongs to Basic Science (Chemistry, Physics, Botany, Zoology), Earth Sciences (Geology), Mathematics and Statistics, and allied sciences (Microbiology).

Broad area – Soil Health

- Structural and functional characterization of biochar from agro-waste
- Applicability of biochar for soil nutrient delivery and management
- Mathematic modeling for soil nutrient management

Broad area – Sustainable Farming

- Exploring avenues of drip irrigation, plants for crop rotation/intercropping
- Plant breeding for crop improvement

SKSC **Dr. Shantilal Karamsibhai Somaiya College**, established in 2019, provides transformational career programs. They offer holistic programs in Commerce & Economics, Management studies, Literature & Languages, Humanities & Social Science, Science & Technology.

Broad area – Soil Health

- Screening, selection, and development of a microbial consortium of plant growth promoters through culture-dependent studies
- Mathematic modeling for soil nutrient management

KJSCE **K J Somaiya College of Engineering**, established in 1983 possesses a long and rewarding history in education, invention, and innovation verticals. Their research and internship intensive programs in Mechanical Engineering, Computer Engineering, Electronics, Telecommunication Engineering, and Electronics Engineering - are accredited by the National Board of Accreditations.

Broad area – Digital Agriculture

- AI & IoT for
 - : Soil Survey
 - : Water Resource Management

Broad area – Agricultural tools & aids

- Product design and development of economic farming aids and devices

KJSIET **K J Somaiya Institute of Engineering and Information Technology** is the second Engineering College established by the Somaiya Trust in 2001 at Sion's Ayurvihar campus. Their undergraduate programs – Computer Engineering, Electronics and Telecommunication Engineering, and Electronics Engineering - are accredited by the National Board of Accreditation.

Broad area – Precision Agriculture

- GIS & Remote sensing to
 - : Evaluate crop yield
 - : Water Resource Management

SSD **Somaiya School of Design**, supported by RiiDL, established in 2021, is leading the way to reinvent Design education. Its mission is to develop programs relevant to society's needs and create flexible educational models to suit the contemporary changes in the world around us.

Broad area – Agricultural tools & aids

- Product design and development of economic farming aids and devices.

Date: April 26, 2022 (Tuesday)

Venue: Smt Sakarben Karamshi Somaiya Sabhagruha, Bhaskarcharya Building

Objective: Identify research areas of collaboration for smart and sustainable agriculture

Timing	Schedule	
10.00 am to 11.15 am	Inaugural Ceremony	
11.15 am to 11.30 am	Tea break	
Lecture Sessions		
Session Coordinator: Dr. Ajit Katdare		
11.30 am to 1.00 pm	Dr. Ashok D. Kadlag Director- KIAAR	Climate-Smart Agriculture - Challenges and Opportunities Dryland Technology for Mitigating Climate Resilience
1.00 pm to 2.00 pm	Lunch break	
Session Coordinator: Dr. Milind Nimade		
2.00 pm to 3.00 pm	Dr. Vijaykumar Gangaraddi Microbiologist-KIAAR	Biofertilizers: A Boon to Soil Health
Session Coordinator: Dr. Ujwala Bhagale		
3.00 pm to 3.30 pm	Ms. Akshata Metras Research Assistant- KIAAR	Nutrient Management in Fruit Crops
3.30 pm to 3.45 pm	Tea break	
Session Coordinator: Dr. Ketan Thatte		
3.45 pm to 4.30 pm	Dr. (Mrs.) Aarti Yadawad Plant Scientist-KIAAR	Sugarcane Breeding Techniques for Higher Cane and Sugar Yield

Date: April 27, 2022 (Wednesday)

Venue: Smt Sakarben Karamshi Somaiya Sabhagruha (Lecture) and Seminar Halls, Engineering College (Group discussions)

Objective :

- Identify research areas of collaboration for smart and sustainable agriculture
- Draft specific research problem statements

Timing	Schedule	
10:00am- 12:15 pm	Lecture Sessions	
Session Coordinator: Dr. Shyamal Virnodkar		
10.00 am to 11.15 am	Shri. V. S. Bhujannavar, Deputy Manager- Cane Development, KIAAR	Integrated Pest and Disease Management in Sugarcane
Session Coordinator: Dr. Umesh Shinde		
11.15 am to 12.15 pm	Mrs. Rajkamal Goundi, Deputy Manager – GBL	Application of remote Sensing for Delineation of Area and Yield Prediction of Sugarcane
Session Coordinator: Dr. Irfan Siddavatam		
12.15 pm to 1.00 pm	Shri. B. Y. Kongawad, Agronomist - KIAAR	Recent Technologies in Sugarcane Production
1.00 pm to 2.00 pm	Lunch break	
2.00 pm to 3.00 pm	Group discussions among teams of KIAAR and Somaiya Vidyavihar Faculty / students (Parallel sessions)	
Session Coordinators	Parallel Group Discussions (Research faculty and Students)	

Group I (Plant Breeding, Crop improvement, Pest management)

Seminar Hall B113

Dr. Veena Salvi Department of Botany (KJSSC)

Dr. Meena Patankar Department of Zoology (KJSSC)

Dr. Amol Patwardhan

Group II (Precision Agriculture, Digital Agriculture, Agriculture tools & aids)

Seminar Hall B507

Dr. Vricha Chavan Department of Physics (KJSSC)

Dr. Hariram Chavan Department of Sciences & Humanities (KJSEIT/KJSCE)

Faculty/students from Engineering & Technology
(KJSEIT/KJSCE)

Department of Molecular System Biology (SIRAC)

Group III (Soil Health & Microbial Diversity, Sustainable Farming practices)

Seminar Hall A225

Dr. Abhishek Mane Department of Microbiology (KJSSC)

Dr. Soniya Shetty Department of Biotechnology (SKSC)

Department of Molecular System Biology (SIRAC)

Group IV (Soil Health & Microbial Diversity, Sustainable Farming practices)

Seminar Hall B517

Mr Chinmay Khanolkar Department of Chemistry (KJSSC)

Dr Chitra Kamath Department of Sciences & Humanities - Chemistry
(KJSEIT/KJSCE)

Department of Geology (KJSSC)

Department of Environmental Sciences (SKSC)

Department of Molecular System Biology (SIRAC)

Date: April 28, 2022 (Thursday)

Venue: Kalidas Sabhagruha, K.J. Somaiya College of Arts & Commerce

Objective :

- Draft specific research problem statements
- Form result-driven multi-institutional research team

Timing	Schedule
Session Coordinator: Dr. Aniket Pawnoji	
9.30 am to 11:30 am	Group presentations by Session Coordinator(s) about probable research projects (Group I – IV order)
Session Coordinator: Dr. Seema Sambrani	
11.30 am to 12.30 pm	Panel Discussion
12.30 pm to 1.30 pm	Concluding remarks by the Dean Research and HOIs Vote of Thanks
1.30 pm to 2.30 pm	Lunch break

Registration is mandatory. Kindly register by 20th April 2022

Registration link: <https://forms.gle/jnBhEj9dBnntgQWb9>