



In Association with



INTERNATIONAL CONFERENCE ON ADVANCES IN INFORMATION TECHNOLOGY AND MANAGEMENT

Leveraging Information Technology for Agricultural & Nutritional Development

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Thakur Educational Trust's (Regd.)

Thakur Institute of Management Studies, Career Development & Research

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)

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Chief Patron's Message for ICAIM-2018



TIMSCDR, under the aegis of Thakur Education Group (TEG) has been traversing a path of continuous improvement in the areas of education and research at multidisciplinary level. ICAIM 2018 - Leveraging Information Technology for Agricultural & Nutritional Development is an initiative to explore the incentives and opportunities for the application of IT in the domains of Agriculture and Nutrition.

TIMSCDR, has made yet another unremitting effort in bringing up this unique interdisciplinary platform to encourage Professionals and young Research Scholars from the fields of Agriculture, Medicine, Nutrition and IT to put forth their ideas and views and come up with solutions which can be seamlessly leveraged by the use of IT.

I take this opportunity to congratulate the organizing committee for their dedication and hard work for successfully arranging this event. I am also very grateful to all the delegates and research scholars for sharing their research work and making this conference a huge success.

V. K. Singh

Chairman

CEO's Message for ICAIM-2018



I take the opportunity to welcome you for ICAIM 2018 - **“Leveraging Information Technology for Agricultural & Nutritional Development”** organized by TIMSCDR under the aegis of Thakur Education Group (TEG).

The Conference showcases a broad spectrum of discussions and research pertaining to the domains of Agriculture, Medicine, Nutrition and Information Technology. A sincere effort in made by TIMSCDR team to study the opportunities available for leveraging IT in the most dominant field of Agriculture, Medicine and Nutrition.

ICAIM 2018, is a unique attempt by TIMSCDR, which provides a platform for the exchange of ideas and findings from multidisciplinary intellectuals from academia, industry and research institutions in from the fields of Agriculture, Medicine, Nutrition and IT. I am sure this exchange of ideas among eminent and erudite personalities from relevant fields will open many more avenues of future technological enhancements.

The zeal and enthusiasm with which the organizing committee has come forward is commendable. I extend my best wishes to the faculty, delegates and the organizing committee for excellence in their endeavours.

Mrs. Karishma Singh Mangal
CEO

Director's Message for ICAIM-2018



"To remain indifferent to the challenges we face is indefensible. If the goal is noble, whether or not it is realized within our lifetime is largely irrelevant. What we must do therefore is to strive and persevere and never give up." – Dalai Lama XIV

Challenges demand change, a no to face Challenges is a no to change.

ICAIM 2018 was an attempt to introspect into the Challenges faced by the centrally important community of our Society – Farmers. This academic effort of ICAIM 2018 was in association with AMC (Association of Medical Consultants), MACCIA (Maharashtra Chamber of Commerce, Industry and Agriculture) and IDA (Indian Dietetic Association). The Conference provided a platform to study the Challenges faced by Farmers and the role of Information Technology in minimizing some of the Challenges. Further, along with Agriculture, Nutrition was another domain which was studied during the making of the Conference along with the relevant role of Information Technology to enhance Nutritional development.

The yearlong efforts to bring up ICAIM 2018 brought us closer in interaction with Farmers, Doctors, Dieticians and Information Technology professionals. The journey of ICAIM 2018 enhanced our perception and knowledge about the vast field of Agriculture and identified the immense scope of not only leveraging Information Technology in Agriculture, but initially creating awareness amongst the main stakeholders – Farmers and their knowledge providers Agriculture Professors and Students. It also provided insights into the current trends of leveraging IT as it is leveraged in Nutritional development.

The making of ICAIM 2018 would not have been possible without the fruitful communications with stakeholders from the domains of Agriculture, Medicine and Nutrition. We are grateful to the Vice Chancellors of the four prominent Agriculture Universities of State of Maharashtra for giving us the opportunity to interact with Faculty, Students and Farmers associated with their respective Universities.

We are grateful to our associating partners MACCIA for helping us successfully complete the Survey of 400 farmers and 27 Faculty and 76 Students of Agriculture from Parbhani, Rahuri, Dapoli and Nashik from the State of Maharashtra. Our sincere thanks to AMC and IDA for helping us gather relevant inputs relating to Nutritional Development.

I personally express my heartfelt thanks and am grateful to all those who are involved in the making of ICAIM 2018 to come up as a unique event. My reverend thanks to our Chairman, Mr. V. K. Singh and our Management for their unending support and faith in what we do.

I sincerely invite the multidisciplinary delegates from the fields of Agriculture, Medicine, Nutrition and Information Technology to be a part of this unique gathering and wish them All the very Best.

Dr. Vinita Gaikwad

Director

About TIMSCDR

The Thakur Educational Group comprises of three Trusts namely Thakur Educational Trust (Regd.), Zagdu Singh Charitable Trust (Regd.) and Zagdu Singh Educational Trust (Regd.) managed by the Thakur family and runs 16 Institutes located in Kandivali, western suburb of Mumbai.

TIMSCDR (Thakur Institute of Management Studies, Career Development and Research) is dynamic institute striving to provide quality higher education. The institute is an ISO 9001:2015 certified providing three years MCA (Master of Computer Application) course. All possible ways of acquiring academic insight and undertaking appropriate academic initiatives are explored at the institute. TIMSCDR also has an ISTE (Indian Society of Technical Education) chapter.

TIMSCDR is organizing next International Conference ICAIM-2018 which serves as a platform for gathering all academicians, industrialist, researchers and professionals in the disciplines of Information Technology, Agriculture and Medicine (Nutrition).

About AMC

The Association of Medical Consultants (AMC) was established in 1972 by a small group of energetic active and concerned medical consultants from distant suburbs who often assembled and animatedly discussed their common problems. Over the years, the immense need rose for an organisation of this nature and the Association grew rapidly. It is now one of the fastest growing Associations of Specialist Doctors in Mumbai and boasts of a membership strength of more than 9000 Medical Consultants. AMC represents Consultants practicing at corporate and non corporate Tertiary care referral Hospitals (both Government and Private) and individual Consultants practicing through their own consulting rooms, Clinics & Nursing Homes spread across Greater Mumbai, Navi Mumbai and Thane districts. It is recognized as a frontline Medical Organization and is an important opinion making body which addresses vital public health and professional issues facing the medical profession in general and medical consultants in particular. AMC has effectively brought together consultants of various disciplines on one platform and aims to highlight and offer solutions to all the important day to day problems faced by consultants.

About MACCIA

Maharashtra Chamber of Commerce, Industry & Agriculture (MACCIA) is the Apex Chamber of the State. The Chamber plays a pivotal role in supplementing and augmenting the efforts of Government for the economic development of the State and advancement of its people. With more than 3500 direct Members, comprising of large, medium and Small-Scale Industries, Traders, Agriculturist and Professionals, MACCIA is the only Chamber in Maharashtra, which has deep-roots in all the 35 Districts encompassing 355 Talukas of Maharashtra. In addition over 800 Local Trade and Industry Associations and professional bodies having collective membership of over 700,000 business organizations from all over the State are affiliated to the Chamber and thus it virtually functions as the State's Apex Chamber.

About IDA

IDA - Mumbai Chapter is the largest chapter in the Indian Dietetic Association with a pool of 2000 Life Members, over 800 student members and many Associate Members. It is also one of the most active chapters of IDA and the chapter has collaborated with various organizations. With regards to community outreach programs, the prime focus is on educating about the knowledge on right nutrition and spreading awareness through campaigns, lectures sessions, counseling services. Right from Pediatric Nutrition to Geriatric Nutrition, from Preventive to Therapeutic Nutrition, IDA plays an important role in dealing with communicable as well as non-communicable diseases too. IDA, Mumbai chapter strongly believes in holistic approach in all aspects of nutrition and dietetics.



Dr. Lalit Kapoor
Director, AMC

TIMSCDR and AMC have been working closely since the last 3 years in organizing these theme based Conferences which provide a common platform for discussions and enhancing knowledge related to the use of IT in medicine. This year also, since the theme is Use of IT in Nutritional Development, Expert talks by Professionals from the field of Medicine, Nutrition and Information Technology will be delivered. This will be followed by Panel Discussion to discuss and deliberate on “How Safe is the Food on our Table” and can IT play a role in enhancing our Health.



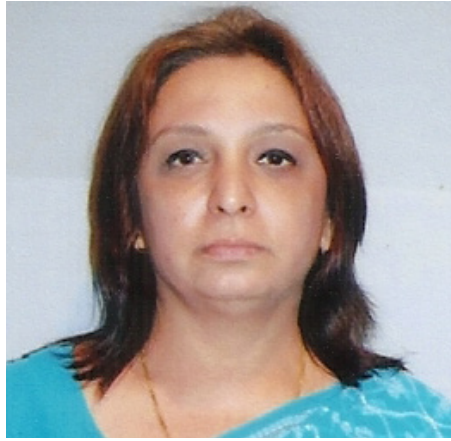
Shri Santosh Mandlecha
President, MACCIA

Science-based agricultural tools hold great potential for undertaking the world's growing population and food demands. From improved seeds, to modern crop protection solutions, to mobile technology for farmers in the fields, to making foods fresher, safer, and healthier along the food chain, the agricultural and food system of the future can be more productive, more sustainable, more efficient, and more interconnected.

To create an awareness amongst farmers about IT devices for agriculture development and to know the problems experienced by the farmers in adopting and utilizing IT devices in agriculture practices, Maharashtra Chamber of Commerce, Industry & Agriculture (MACCIA) and Thakur Institute of Management Studies, Career Development & Research (TIMSCDR) is pleased to organise and International Conference on Advance in IT and Management from February 16-18, 2018 at Mumbai.

This initiative will play as an instrument of change. The access to the right information at the right time will give our farmers the capacity to make informed decisions that affect their livelihoods and thereby play a major role in ensuring food security.

We are confident that this platform will extend successful innovations and good practices widely and will give solutions to address the problem of food security and agriculture.



Dr. Smita Sharma
President, AMC

The Association of Medical Consultants Mumbai is proud to be associated with the ICAIM 2018 to be held on 16th to 18th February 2018. This is the 3rd year that AMC has co partnered in this conference. with TIMSCDR. IT is the future of healthcare. There is tremendous scope for understanding where these applications can improve healthcare delivery. We have now entered an era where the practicing doctor is not shying away from IT but trying to incorporate it in his professional and social life. Everyone today wants to live life at the press of a button on the mobile phone. I am sure this conference will educate us on the judicious use of this world of free flowing technology. The theme of this year Nutrition is very welcome. “You are what you eat” is not just a metaphor. It is the basis of healthy living and positive health. The farmer is our Annadata. All the progress that we have made is of no use if it does not reach this core provider (70% of our population). I welcome this initiative and am sure that this multidisciplinary multidimensional conference will be an informative and enriching experience for all of us. I acknowledge the tireless efforts of Dr Vinita Gaikwad, Dr Mukesh Gupta and the entire Organising team of ICAIM 2018 and wish the conference a grand success



Ms. Sheryl Salis
Founder Nurture Health Solutions
LEC Member, Indian Dietetic Association

At the outset I would like to extend my heartiest congratulations to Dr. Vinita Gaikwad, Director, Thakur Institute of Management Studies, Career Development and Research and her dynamic team for collaborating with the Indian Dietetic Association and Association of Medical Council for this one-of-a-kind, unique conference ICAIM 2018, Leveraging Information Technology & Nutritional Development.

We see a huge transition in nutrition and lifestyle today resulting in a sharp rise in numbers of people with obesity and metabolic conditions. As we all know Self-Management is key for management of obesity and other metabolic disorders like diabetes and heart disease. Technology is considered to be the driving force behind improvements in healthcare and is impacting many aspects of our lives as breakthroughs in data collection, research and treatment. IT positively impacts the practice of the health care provider by bridging the gap, providing data in real time, improving compliance to treatment and lifestyle and thereby improving health outcomes. Use of information technology has also made patient care safer and more reliable.

The topics for the conference are well thought of and will foster a healthy discussion between experts from diverse fields. I have no doubt that it shall immensely benefit the delegates. I wish this conference a grand success.



Dr. Mukesh Gupta

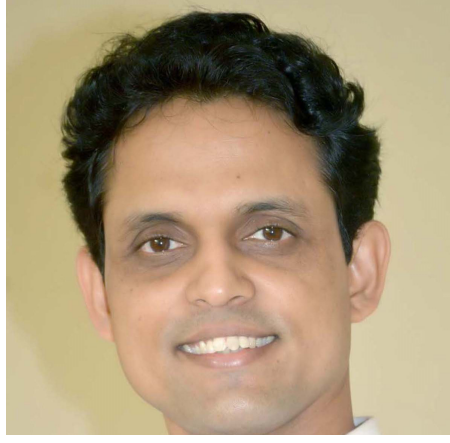
**Consultant Obstetrician & Gynaecologist, Secretary AMC,
Mumbai**

Every year is a unique experience as AMC and TIMSCDR together organize ICAIM. As the years roll by the making of ICAIM is becoming more pertinent. ICAIM 2018 - "Leveraging Information Technology for Agricultural and Nutritional Development" provides a unique platform to discuss on topics of current relevance. Thus, efforts are made to bring out the most in ICAIM 2018 through erudite discussions of Professionals from the fields of Agriculture, Medicine, Nutrition and IT.

The event focuses on the importance of Nutrition and its impact on our Health. Expert talks on topics like "Myths about Nutrition" and "Impact of Adulterants on Nutrition" would be eye openers for the multidisciplinary audience comprising of Professionals, Academicians, Students and Research Scholars from the fields of Agriculture, Medicine, Nutrition and IT. Though the use of IT has become nearly a compulsion for the Doctors, it is worth noting various "Legal Pitfall with IT in Healthcare". Latest gadgets provide accurate details about the status of your Health. As a matter of fact IT can be used seamlessly for Weight Management. Mobile Apps can today be used to seek immediate Expert advice from the Doctor.

Hands-on Workshop for Doctors is a unique experience at ICAIM 2018. The workshop provides hands-on training to Doctors on the latest IT trends. This year the focus is on creating "Digital Presence for a Doctor". The workshop includes topics of relevance like FB Advertising, Website Building and Google Analytics.

We look forward for an encouraging participation from the delegates and invite suggestions which can positively impact our event - ICAIM - next year.



Mr. Samir Dudhgaonkar
Vice President, MACCIA

ठाकूर माहिती तंत्रज्ञान, व्यवस्थापन व संशोधन द्वारा आंतरराष्ट्रीय कृषी परिषद आसीएआयएम २०१८ हा अभिनव उपक्रम घेतल्याबद्दल महाराष्ट्र चेंबर ऑफ कॉमर्स, इंडस्ट्री अँड अॅग्रिकल्चरतर्फे अभिनंदन करतो व शुभेच्छा देतो.

कृषी क्षेत्रात मोठ्या प्रमाणात काम करण्यास वाव आहे. अद्यावत माहिती, नवनवीन तंत्रज्ञान, विज्ञान आधारीत शेती कशी करता येऊ शकते याची माहिती शेतकऱ्यांपर्यंत पोहचविणे आवश्यक आहे. हे काम ठाकूर महाविद्यालयातील विद्यार्थी, प्राध्यापक यांनी करून परिषदेच्या माध्यमातून त्याला मूर्त स्वरूप दिले ही आनंदाची बाब आहे.

मोदी सरकारचा उत्पादन खर्चाच्या ५०% MSP देण्याचा २०१८ अर्थसंकल्पातील निर्णय स्वागतार्ह आहे. २ दशकाहून अधिक काळ प्रलंबित असलेली मागणी आता पूर्ण झाली आहे. शेतकऱ्यांनी अशा होणाऱ्या बदलात स्वतःमध्ये बदल घडवून आणावे जेणेकरून माहितीच्या युगात बोटार मिळू शकणारी माहिती वापरून मातीचे सोने करता येईल.

या आधीचा इतिहास पाहता भारत शेतीप्रधान देश असूनही शेतीच्या प्रश्नांकडे अक्षम्य दुर्लक्ष झालेले आहे. शहराकडे येणारे लोंढे वाढण्यामागे शेतीकडे झालेले दुर्लक्ष कारणीभूत आहे.

असे होत असतांना सुध्दा काही जुन्या काळातही काही शेतकऱ्यांनी ज्ञान मिळवून, मेहनत करून चांगली शेती केलेलीही आपण पाहतो. असे प्रगतीशील शेतकरी आयुष्यासाठी उमेद कायम राखतात, अभ्यास करतात, तज्ञांचे मार्गदर्शन मिळवितात आणि स्वतःच्या मातीतून सोन्यासारखी पिके काढत आहेत.. आयुष्याची उमेद राखणे, ज्ञान मिळविणे फार महत्वाचे आहे हे यातून आपल्याला दिसते.. असेच आजच्या युगात लागणारे ज्ञान या राज्यस्तरीय परिषदेच्या माध्यमातून काम करून शेतकऱ्यांपर्यंत पोहचवत आहे ही वारखाणण्याजोगी बाब आहे.

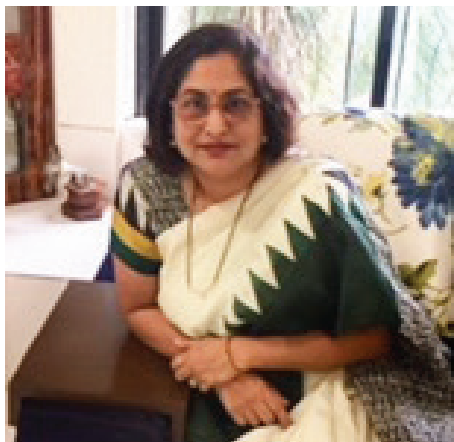
देशाच्या आर्थिक उत्पन्नात कृषी क्षेत्राचे योगदान आहे. कृषीप्रधान देश असूनही कृषी क्षेत्रात नवनवीन बदल होत असतांनाही त्याची अंमलबजावणी किंवा माहिती सर्वांपर्यंत पोहचत नसल्याने कृषी क्षेत्रातील विकास पाहिजे तसा होत नाही. मात्र ठाकूर माहिती तंत्रज्ञान, व्यवस्थापन व संशोधनद्वारा आंतरराष्ट्रीय कृषी परिषद आसीएआयएम २०१८ हा अभिनव उपक्रम राबवून शेतकऱ्यांना नवनवीन तंत्रज्ञानाची माहिती करून देत कृषी क्षेत्राच्या विकासासाठी चांगले काम करत आहे.

परिषदेत शेतकरी व कृषी तज्ञ, अभ्यासक यांच्यात संवाद करण्याचे महत्वाचे काम करून दिल्याने शेतकऱ्यांना त्याचा निश्चितच फायदा होईल.



Mr. Nitin Gaikwad
Senior General Manager, Regulatory
Affairs, LUPIN Ltd.

Heartiest Congratulations to TIMSCDR for organizing an unique conference “Leveraging Information Technology for Agricultural & Nutritional Development-ICAIM 2018” on the Agriculture and the Nutritional development sectors. The topics are the need of the hour in the current scenario in India and am sure the discussions by esteemed speakers, panelists will enlighten the path forward in these key sectors.



Dr. Rita Patil
Associate Professor, Head,
Dept of Foods and Nutrition
Maniben Nanavati Women's
College, Vile Parle
LEC member Indian Dietetic
Association- Mumbai Chapter

India has seen a rapid demographic, nutritional and epidemiological transition in recent years as a result of urbanization and globalization. Thus, there has been a dramatic change in the lifestyle and food consumption patterns. Consequently we today see an increase in diet related disorders such as obesity and diabetes. Therefore strategies for maintaining good health of populations need to be formulated through a multi-pronged approach. Leveraging Information Technology for Agricultural & Nutritional Development is most appropriate today; when the benefits of information technology are known to us. And we also understand the importance of agricultural development to ensure good nutritional status of the society. Congratulations to all of you and best wishes for a successful conference.



Dr. Suresh A Shan
Chief Innovative Officer,
Mahindra & Mahindra

“Leveraging Information Technology for Agricultural and Nutritional Development”. regarding this program I found the students, faculty, senior management of TIMSCDR in association with AMC, MACCIA, IDA, the title and presentations are good and every student passion and content management to empower the farmers, healthcare, IT industry to automate through innovative relevant solutions



Mr. Sudhanshu Ojha
GM-D-link Academy, SAARC &
NetProtect at D-Link India Limited,
Mumbai, India

‘Time flies swiftly’ ! Isn’t this true? Another year has passed and ICAIM-2018 has arrived. The majestic memories of ICAIM-2017 still wander in our minds and once again the time has come to welcome our ICAIM-2018.

I feel proud and pleasant to inscribe a message for my dearest TIMSCDR campus and I also feel great to look at the continued success journey of ICAIM-2017. The progress and success of D-Link Academy Global centre of Excellence at TIMSCDR under dynamic leadership of Dr. Vinita Gaikwad and Team has been achieving, is a matter of pride and joy for all of us. TIMSCDR is continuously marching towards the path of excellence.

I express my hearty wishes for the shining success of this grand event. I hope this event will be a platform for all our energized students where they can dynamize their latent potentials. So, I wish my best goodwill for the success of our participants, students, Faculty, Industry and Thakur Education Trust, too.

Wishing best of the success to all!



**Prof. (Dr. Ms) Sushmita
Bhatnagar**
Pediatric Surgeon

IT and Healthcare have joined hands recently and its importance has been highlighted more and more each year. The Association of Medical Consultants along with “**Thakur Institute of Management Studies, Career Development & Research**” has identified the role of IT in healthcare and have been jointly addressing this topic to improve the knowledge and understanding of this field as well as provide opportunities to apply the knowledge to promote healthcare. This year, the theme of the conference held over 3 days at “**Leveraging Information Technology for Agricultural & Nutritional Development**” showcases the use of IT in nutrition and wellbeing and covers the topics relevant to role of IT in specific areas of food, obesity, weight management, adulterants in food, mother and child care, and food safety.

Welcome to one and all to experience this unique combination of IT and Healthcare.



Mr. Bharat Mandot
Co Founder at Jhakaas Technologies
Private Limited

Leveraging Information Technology for Agricultural & Nutritional Development conference is great initiative by TIMSCDR as, IT is causing a shift in industries across the economy as Information Technology is now an inherent part of the business landscape. Businesses, both large and small, are now prepared to make viable investments in new devices, networks, experienced staff and system upgrades to stay competitive within their respective industries. Now more than ever, industries are powered by technology. Economy’s top industries like Hospitality and tourism, Education and Health Care are leveraging IT for better and effective service. When leveraged effectively, IT can grow business, streamline the processes and improves the efficiency of work forces.

Early adapters are now seeing big results on their bottom line while late bloomers are starting to see the positive effects of IT on their business.



Mrs. Sunita Phalgune, MACCIA

नमस्कार

ठाकुर माहिती तंत्रज्ञान, व्यवस्थापन व संशोधन संस्थे (Thakur Institute of Management Studies, Career Development & Research – TIMSCDR) द्वारा आंतरराष्ट्रीय कृषी परिषद – आयसीएआयएम २०१८ या अभिनव उपक्रमाबद्दल मी महाराष्ट्र चेंबर ऑफ कॉमर्स तर्फे हार्दिक अभिनंदन करते.

भारत हा कृषीप्रधान देश आहे आणि प्राचिन काळापासून कृषी संस्कृती येथे नांदत आहे. असे असूनही देशाच्या आर्थिक उत्पन्नात कृषीचे योगदान आणि देशातील कृषीव्यवस्थेचे स्वरूप तितके असमाधानकारक जाणवते. या उलट भारतातील अनेक युवक गेल्या काही दशकामध्ये विज्ञान, तंत्रज्ञान, पर्यावरण आणि माहिती तंत्रज्ञान या क्षेत्रांत भरीव कामगिरी करीत असून याचा लाभ अनेक देशांना होत आहे. परंतु याची सांगड कृषी क्षेत्राशी घालून भारतीय शेतीला कृषी उद्योगाचा दर्जा देण्याचा विचार आता झपाट्याने पुढे येत आहे.

ठाकुर महाविद्यालयाने या कामी पुढाकार घेऊन माहिती तंत्रज्ञान साधने आणि सोयी यांच्या प्रभावी वाररातून शेती व्यवसायाचा विकासच नव्हेतर पोषक आहाराविषयीचे ज्ञान व त्याची उपलब्धता या विषयावर शेतकरी व तज्ञ अभ्यासक यांच्या सुसंवाद घडवून आणून विकासासाठी अनेक पर्याय शोधण्याचे महत्वाचे कार्य हाती घेतले आहे.

हे शिवधनुष्य पेलण्याचे अवघड कार्य ठाकुर महाविद्यालयाचे अधिकारी, प्राध्यापक वर्ग यांनी आपल्या कर्तव्यनिष्ठा आणि समर्पणेच्या भावनेतून उत्तमरित्या पार पाडले ही उल्लेखनीय व कौतुकास्पद बाब आहे. या पूर्ण टिमचे मी हार्दिक अभिनंदन करते.

या परिषदेत प्रत्यक्ष अप्रत्यक्षरित्या सहभागी होणाऱ्या व काळ्या मातीशी जोडल्या गेलेल्या प्रत्येक भूमिपुत्राला मी शुभेच्छा देते आणि या उपक्रमाच्या यशासाठी ठाकुर महाविद्यालयाला महाराष्ट्र चेंबर ऑफ कॉमर्स कडून सदिच्छा व्यक्त करते.

सुनिता फाल्गुने

चेअरपर्सन – कृषी व अन्न प्रक्रीया उद्योग समिती, उत्तर महाराष्ट्र,
महाराष्ट्र चेंबर ऑफ कॉमर्स, इंडस्ट्री अँड अॅग्रिकल्चर



Ms. Rasika Phatak

खूपच आनंदाची गोष्ट आहे ही ! की, ठाकर इन्स्टिट्यूट ऑफ मॅनेजमेंट स्टडीज, करिअर डेव्हलपमेंट आणि रिसर्च ही मुंबईतील प्रोतियश संस्था, कृषी आणि पोषण या क्षेत्रामध्ये माहिती तंत्रज्ञानाचा वापर वाढविण्याच्या दृष्टिने चर्चा करण्यासाठी मुंबईमध्ये दिनांक १६ फेब्रुवारी ते १८ फेब्रुवारी २०१८ या कालावधीमध्ये दोन दिवसांची आंतरराष्ट्रीय परिषदेचे आयोजन करित आहे.

केवळ महाराष्ट्रातीलच नव्हे तर एकूणच भारतीय शेती ही, बदलाच्या फार मोठ्या संक्रमणावस्थेतून जात आहे. यासाठी प्रमुख कारण ठरले आहे ते म्हणजे माहिती तंत्रज्ञान, आणि संवादाच्या क्षेत्रात झालेली आमूलग्र क्रांती ! माहिती तंत्रज्ञानाचा उपयोग भारतीय शेतीच्या विविध बाबींमध्ये करण्यास मोठ्या प्रमाणात सुरुवात झालेली आहे. माती परिक्षणापासून ते बाजारव्यवस्थेपर्यंतचा सर्वच विषयांमध्ये माहिती आणि संवादाच्या तंत्रज्ञानाचा (ICT) वापर भारतीय शेतकऱ्यांना खूपच उपयुक्त ठरत आहे. शेतातील कोणत्याही प्रश्नाच्या सल्ल्यासाठी आता शेतकरी किसान कॉल सेंटरला फोन करून माहिती घेऊ शकतो.

संगणक, मोबाईल, टॅब्लेट्स इत्यादी साधने म्हणजे ICT तंत्रज्ञानाचा आविष्कारच आहेत. पिकांच्या उत्पादनाचे संपूर्ण तंत्रज्ञान, प्रक्रिया, साठवणूक, पीक परिस्थिती, हवामान पाऊस, यांचे अंदाज, नैयसर्गिक आपत्ती. कृषिमालाचे बाजारभाव , इत्यादींच्या माहितीच्या देवाणघेवाणीसाठी आता ई-मेल, शॉर्ट मेसेजेस यासाठी इंटरनेट मोबाईलचा वापर, सुक्ष्मसिंचनाच्या नियोजनासाठीचा माहिती तंत्रज्ञानाने शक्य झाल्याने, कोकणातील ग्रामीण भागामध्ये शेतीविषयक सल्लागार म्हणून काम करण्यासाठी आम्हाला खूपच फायदेशीर ठरत असल्याचा प्रत्यक्ष अनुभव आहे.

या अतिशय महत्वाच्या आंतरराष्ट्रीय परिषदेमध्ये केवळ पिकांचे उत्पादनच नव्हे तर त्यांवरील प्रक्रिया, आंतरराष्ट्रीय बाजारपेठेमध्ये भारतीय कृषिमालाचे महत्व आणि त्याच्या निर्यातीसाठी उपलब्ध असलेली संधी यांवर त्याचप्रमाणे कृषीउत्पादनास मारक ठरणाऱ्या नैयसर्गिक आपत्ती, हवामानातील बदल आणि पिकावरील कीड-रोगांच्या नियंत्रणासाठी ICT चा वापर महत्वपूर्ण व उपयुक्त चर्चा होईल याचा विश्वास वाटतो. या संस्थेच्या संचालिका डॉ. विनिता गायकवाड आणि त्यांचे सर्व सहकारी, यांनी परिषदेच्या यशस्वितेसाठी खूप मेहनत घेतली आहे. त्यांचे मनःपूर्वक अभिनंदन आणि परिषदेसाठी खूप खूप शुभेच्छा !

रसिका अनिल फाटक
कृषिसल्लागार, जांभूळपाडा
सुधागड, जिल्हा - रायगड.



Mr. Ashok Lokhande
Director Agriculture (Retired)
Commissionerate of Agriculture, Maharashtra, Pune.

Though the economic contribution of agriculture to Indian GDP is steadily declining with the country's broad based economic growth, agriculture is demographically most important economic sector and plays a significant role in overall socio-economic fabric of the country.

With a proven fact that modern farming methods help in increasing total food production and minimizing cost of production in agriculture sector, there is an immense potential of information communication technology in farm output, marketing, processing, export & precision farming. It could also be effectively used to meet the challenges posed to the farm sector by climate change. It is observed to be very effective in information exchange, diagnostic and advisory services too. With the help of the ICT, surveillance with sensors and image processing through remote sensing and GIS application has been proved to be possible.

Now a common farmer in the remotest part of the country need not go to the scientist with the diseased specimen of a stem, leaf, root, fruit or flowers for their diagnosis and control measures. But it could be exchanged through easy tools like E-mail & WhatsApp.

The various tools of ICT are also helpful in mitigating the alarming problems of nutrition in the country.

On this background the two-day conference, "Leveraging Information Technology for Agriculture & Nutrition" will be of immense help to the stakeholders working in the field of agriculture and nutrition.

I was a part of the pre-discussions in the process of organizing this conference,

But regret that I am unable to participate due to my pre-occupations.

I wish a grand success for the conference.

Mr. Ashok Lokhande
Director Agriculture (Retired)
Commissionerate of Agriculture, Maharashtra, Pune.

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PREFACE

“The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings.” — *Masanobu Fukuoka*

ICAIM 2018 was a yearlong study to understand the Role and Use of Information Technology in Agricultural and Nutritional Development. This was purposefully done by seeking association of prominent bodies like MACCIA (Maharashtra Chamber of Commerce, Industry and Agriculture), AMC (Association of Medical Consultants) and IDA (Indian Dietetic Association). Agriculture and Nutrition go hand in hand. If the Agricultural produce is unadulterated the nutritional components within the food remain intact leading to good health. Further, Information Technology can play a vital role in ensuring that Agricultural produce is Nutritional and a proper dietary balance is maintained by us to be healthy.

To understand what is currently happening in the field of Agriculture various visits were paid to Farms within the State of Maharashtra. During our very first visit at Save Farms we for the first time understood the concept of a Progressive Farmer. A Progressive Farmer has the inherent passion and enabling capacity to tune to the changes taking place and progressively move ahead converting Agriculture Challenges into Opportunities. During our visit we were also appraised with concept of Agro-Tourism.

To enhance our understanding of IT in Agriculture a systematic plan was designed to visit the four prominent Agriculture Universities of the State of Maharashtra namely – Dr. Balasaheb Sawant Konkan Krushi Vidyapeeth - Dapoli, Vasantrao Naik Marathwada Krushi Vidyapeeth – Parbhani, Mahatma Phule Krushi Vidyapeeth – Rahuri and School of Agriculture YCMOU – Nashik. Questionnaire based survey was conducted at these Universities with Farmers and University Faculty and Students as respondents. The survey was initially planned for 500 Farmers, 50 Faculty and 125 students. The final survey data was collected from 400 Farmers, 27 Faculty and 76 Students. The Survey findings enabled us to understand the role and use of IT in Agriculture. The brief finding indicated that Farmers are mostly using Mobile Phone as an IT tool to access information relating to Agriculture. They are however not very appreciative about using Mobile Apps which are freely provided by Government due to various issues, of which the most prominent one is Poor Network Connectivity. Most of the Farmers are unaware about these initiatives taken by the Government for their benefit. Similarly, the Agriculture Faculty who are the main source of providing latest information and updates to Farmers along with guidance to produce a successful crop, are not using IT prominently to access information relating to Farmer Success Stories or latest updates the field of Agriculture in India and abroad. They are not keen about finding out the various IT tools which can be used in Agriculture. The use of IT for doing research in Agriculture is also not much found amongst the Faculty. On the contrary Agriculture Students were found to be more proactive in accessing latest information in Agriculture to study the latest trends and developments at the National and International level.

Nutrition which plays an important aspect in our life was also studied as part of the Conference. Association with IDA contributed in understanding various myths about Nutrition along with an introspection about the actual Nutritional value of the food on our dining table. To understand the impact of Nutrition on the Oral Health, a small survey

based research was done through the conduct of a Dental Checkup Camp to understand the impact of Nutrition on Oral Health in association with MGMDCH (Mahatma Gandhi Mission Dental College and Hospital). Rigorous deliberations with eminent Doctor Consultants from AMC further added to our understanding of daily Nutrition and its impact on our health.

ICAIM 2018 has brought Farmers, Doctors, Nutritionist and IT Professionals on a single platform to best understand the correlation and use of IT in the domains of Agriculture, Medicine and Nutrition. It was a unique opportunity to interact with professionals from different background and with totally unique mindset and attitudes. There was immense learning during this yearlong process of making of ICAIM 2018.

I feel extremely happy to put forth before you ICAIM 2018 Proceeding which involves tireless efforts made by many. The proceeding is a unique collation of interdisciplinary research work relating to the fields of Agriculture, Medicine, Nutrition and Information Technology put forth by research scholars from these fields respectively. The efforts involved in the assembly of ICAIM 2018 Proceeding are truly noteworthy and can be witnessed as you read through the pages of this matchless piece of literature.

Dr Vinita Gaikwad
Director

INDEX

Sr. No.	Article	Page No.
1.	Study of Benefits of organic Food and Homoeopathic Medicines in Management of various Food related Gastrointestinal Disorders <i>Dr. D.G.Bagal, Dr. Uttara Agale</i>	1-5
2.	The Study of Usage of Online Learning Resources in Medical Courses Dr. Payal Kasat, Sonu Gupta, Rupali Jadhav, Dr. Gayatri Muthiyan	6-10
3.	Study of Role and Awareness of Information Technology in Agriculture in State of Maharashtra Dr. Vinita Gaikwad, Milind Prabhu, Pankaj Mudholkar	11-20
4.	Urban household kitchen waste management: Compost quality and shredding in automatic compost machine Aprajita Singh, Mira Gohil	21-26
5.	A Study of The Components of State-of-The-Art Agro-Based Management Information Systems in India Dr. Rajesh Kapur, Sneha Rane	27-31
6.	Effect of Climate Change on Agriculture Suresh Wankhede, Atul Tiwari, Kiran Dubey	32-34
7.	Impact of Information & Communication Technology on agriculture with special reference to Farmers from Maharashtra Devnath Jayaswal, Prakhar Jain	35-40
8.	Artificial Intelligence in Speech Recognition Sapna Sharma, Monisa Rodrigues	41-42
9.	Challenges in Water Management and Its Adverse Impacts on Ecosystem Gajendra Dixit, Brijesh Pandey	43-46
10.	Study of Farming Techniques Rashmi Vipat, Sreeja S. S., Gargi Bhattacharya	47-50
11.	Applications of Information and Communication Technology in Agricultural Domain <i>Dr. Pravin R. Gundalwar, Megha Mudholkar, Shirshendu Maitra</i>	51-54
12.	A Study on Automation in Agriculture Misba Khan, Rina Joshi	55-58
13.	Cloud Computing on Pharmaceutical System Pradip kumar Yadav, Rahul Yadav	59-61
14.	Smart Agriculture: A Bliss to Farmers Krishna Upadhyay, Tanvi Velankar	62-65
15.	Fundamentals of Artificial Neural Network Pravin Kumar Patel, Shubhendo Diwedi	66-69
16.	Role of Middlemen in Agriculture Somesh Matkar, Ruchika Manchekar	70-71
17.	A Study on Soil Monitoring and Control Rency Rodrigues, NiyatiPrabhu	72-73

Sr. No.	Article	Page No.
18.	A Study on Role of IT in Agriculture Development Deepak Rajpurohit, Saurabh Salvi	74-77
19.	Composting of Food Wastes Imran Khan	78-80
20.	Hand Gesture Recognition Saurav Upadhyay, Justin Joseph	81-83
21.	Loan Waiver Scheme And Indian Agriculture Bablu Yadav, Rahul vishwakarma	84-87
22.	Biotechnology: Enhancing human Nutrition in Developing and Developed Worlds Vinay Yadav, Rahul Yadav	88-93
23.	Factory Farm Cloud Nishant Adhikari, Neha Yadav	94-96
24.	Transition to Smart Farming with the help of Technology: Using Soil Moisture Measuring Device Yash Shah, Samruddhi Ingale	97-100
25.	A Survey Conducted on E-Agriculture with Farmers Kajal Singh, Pinky Singh	101-103
26.	Awareness of Garbage Disposal Priti Singh, Dhiraj Arvind Singh	104-108
27.	Arm Based Agriculture Lavanya Gubbala, Niraj Dubey	109-111
28.	Drought Prevention Amit kumar Vishwakarma	112-114
29.	Problems of Solid Waste Management in Indian Cities Apurva Khedkar, Edberg Kinny	115-118
30.	Information Technology in Green Revolution Vikas Pandey	119-122
31.	Drones for Spraying Pesticides: The Future of Agriculture Gomati Vysya, Anuradha Yadav	123-126
32.	Automated Vermicompost Plant Umesh Khatavkar, Khan Mahammad Zubair	127-128
33.	Nanotechnology in Agriculture and Food Processing Foram Solanki, Rahul Sutrave	129-133
34.	Soil Stabilization using Lime Tushar Rajbhar, Vikas Rajbhar	134-136
35.	Study of Household Waste Composting in India Rahul Mishra, Akshay Mistry	137-139
36.	Study of Different Sensors Used in Composting Shruti Nair, Neha Pal	140-141
37.	Survey on Organic Composition of Household Waste in India Anuj More, Shubham Murgunde	142-143

Sr. No.	Article	Page No.
38.	Overview of IoT based pH level Monitoring System Anurag Singh, Chetan Soni	144-147
39.	Impact of Information Technology in Nutritional Development Niharika Singh, Aakash Varma	148-151
40.	The impact of Agriculture on Financial Institution in India Shweta Pednekar, Jatin Rane	152-154
41.	Understand Use of Fertilizers using Technology Rahul Mahadik, Melvin Mathew	155-157
42.	Study on Crypto Currency Mining: Bitcoin Siddhesh Kadam, Vardhan Kale	158-162
43.	A proposal to use crowd funding to raise money for farmers in debt and prevent farmer suicides Trishul Mody, Priyanka Nikalje	163-167
44.	Indian food crises and overcoming it by using technology <i>AishwaryaRane, Jui Pore</i>	168-171
45.	Scope of Automated Agriculture in Indian Scenario Kaushal Shah, Anjali Singh, Priya Saroj	172-174
46.	A Study of Customer Perception about Online Product Quality Agalya Konar, Deepa kori	175-177
47.	Agriculture Partnership, Business and Technology Meera Yadav, Pooja Yadav	178-180
48.	Scope of ICT in Agriculture Charmi Shah, Abhishek Shrivastav	181-182
49.	Monitoring Soil Fertility using Sensors Ami Thaker, Komal Thakur	183-186
50.	Commercial Aspect of Compost Adithya Kanchan, Khan Jamil	187-189
51.	Proxy Caching Algorithm and The Improvements To Be Made Jyotsna Singh, Surbhi Shukla	190-194
52.	Study on Information Technology in Dairy Industry Karan Singh, Kunal Vishwakarma	195-196
53.	Artificail Intelligence in field of Agriculture Omkar Devrukhkar, Abhishek Dubey	197-199
54.	Importance of Soil Conservation and its Techniques Sameer Kadam, Tejal Kadam	200-203
55.	Effect of Air Pollution on Chlorophyll Content of Leaves Arbind Yadav, Arun Yadav	204-206
56.	Manual Based Information System for Managing Small and Fragmented Agricultural Land: A Mobile Application Approach Rahul Sharma, Rohit Yadav	207-210
57.	Sensor Based Drip Irrigation Anurag Dubey, Krishnachand Dubey	211-215

Sr. No.	Article	Page No.
58.	Air Pollution and its effect on Chlorophyll Content of different Leaves Vandanadevi Yadav, Tanvi H. Purandare	216-218
59.	Research on Food Computer: New Step towards Technology Lead Farming Aniket Dalvi, Rohan Patel	219-220
60.	Application of Smart Based Sensor in Agriculture Pooja Pandey	221-224
61.	Overview of IoT Based Smart Agriculture Monitoring System Parasmani Pal	225-228
62.	Personalized Nutrition Information using Mobile Application Arsalaan Ansari, Seema Choudhary	229-230
63.	Artificial Intelligence with Robotics in Agriculture Vivek Chaube, Shamal Ambre	231-233
64.	Hydroponic Farming Aishwarya Mungekar, Krunal Mistry	234-241
65.	Improving Efficiency of Agriculture Development Using ICT Tools Prashant Poojary, Sanjay Pundir	242-245
66.	Use of Bigdata in Smart Farming Gauri Naik, Shilpa Naik	246-249
67.	Farming Simulation:Farming System Modelling Minal Sawant, Shalaka Sane	250-251
68.	Precision Agriculture : A Modern Approach to Smart Farming Akshay Mehta, Monish Masdekar	252-255
69.	Data Mining In Agriculture Sandeep Chauhan, Suraj Chaurasia	256-258
70.	Detecting Crop Diseases using Sensor AvinashVerma, AbhishekYadav	259-260
71.	Environmental Impact on Agriculture and Food Supply Mukesh Verma, Niraj Vishwakarma	261-263
72.	Cow's Health System Susmita Gawde, Sayali Gharat	264-266
73.	Organic Waste Management Neha Gidh, Prajakta Hegde	267-268
74.	Robofarm Atul Mishra, Ankit Mishra	269-271
75.	Impact of Climate Change on Agriculture Aarti Vishwakarma, Amit Vishwakarma	272-277
76.	Impact of weather and climate on cropping area and intensity Nitika Bansal, Chinmay Chavan	278-280
77.	Awareness of Information Technology in Agriculture Manish Vishwakarma, Sandeep Vishwakarma	281-283
78.	Automation in Agriculture using Microcontroller and Sensors Arjun Varma	284-286

Sr. No.	Article	Page No.
79.	Social Media and Technology <i>Shivshankar Yadav, Shivkesh Yadav</i>	287-289
80.	Automatic Water Sprinkling using Soil Moisture Sensor <i>Rahul Deshmukh, Charul Dalvi</i>	290-291
81.	Use of Information and Communication Technology (ICT) for Livestock Tracking and Monitoring <i>Prakash Mandhyan, Manishkumar Mishra</i>	292-294
82.	A Survey Conducted on E-Agriculture with Indian Farmers <i>Kajal Choudhary</i>	295-297
83.	IoT and Smart Farming <i>Shyam Prakash Yadav, Shraddha Ghatge</i>	298-300
84.	Horticulture Machinery <i>Rahul Maurya, Prabhat Pandey</i>	301-303
85.	Information Technology in Agriculture <i>Himesh Krishna Jha, Chandrabhusan Dubey</i>	304-307
86.	Detection of Infected Plant Leaf Using Image Processing <i>Anand Upadhyay, Subeesh Sukumaran, Shubham Singh</i>	308-311
87.	Climate Change and its Impact on Agriculture <i>Gauresh.S.Lotlikar, Krishnakant Maurya</i>	312-316
88.	Agricultural Drone Wireless Technologies in Agriculture <i>Priyanka S. Gawade, Vishal Gupta</i>	317-320
89.	Review of Automatic Compost Generation Method <i>Seema Mishra</i>	321-323
90.	Modernization of Irrigation System with Automated Pump Irrigation <i>Roshni Dobarra, Balkrishna Choursia</i>	324-328
91.	Soil Conservation and its Different Methods and Measures <i>Prakhar Singh, Pooja Singh</i>	329-332
92.	Study on Recent Trends in Online Shopping in India <i>Abhishek Chilka, Sandeep Chauhan</i>	333-336
93.	Wireless Sensor Network and its Application in Agriculture <i>Abhay M Singh, Dhiraj Singh</i>	337-340
94.	Effect of Music on Plants <i>Aaina Khan, Pinky Kanojia</i>	341-343
95.	Study on 3G and Wi-Fi Technology <i>Isha Kumar, Radhika Kumavat</i>	344-346
96.	Various Soil Moisture Sensors Used in Agriculture: An Overview <i>Vaibhav Trangadiya, Aman Tripathi</i>	347-349
97.	Soil Monitoring Robot to Detect Level of Carbon, Hydrogen and Nutrition Inside the Soil <i>Omkar Sawant, Vipul Sethi</i>	350-352
98.	Survey based Study of Climate Change on Agriculture <i>Akash Yadav</i>	353-355

Sr. No.	Article	Page No.
99.	Poultry Farm Monitoring System <i>Sayali Pusalkar, Rajas Pitale</i>	356-359
100.	Plant Growth Monitoring Using IoT <i>Vishal Sharma, Alok Singh</i>	360-362
101.	New Trend in Agriculture: Precision Farming <i>Sanket Dhumal, Namrata Dubey</i>	363-365
102.	Impact of Information Technology on Banking Sector <i>Manish Kini, Kunti Saroj</i>	366-368
103.	Smart Irrigation System using Smartphone <i>Manish Tiwari, Vinit Tiwari</i>	369-371
104.	Enhancing average Indian Farmer's Income: An IT Approach <i>Rohit J. Yadav, Pooja Yadav</i>	372-374
105.	Growth of Agriculture Using Data Mining <i>Rohit Yadav, Sachin Vishwakarma</i>	375-378
106.	UAVs in Agriculture <i>Kinjal Doshi, Shaziya Shaikh</i>	379-382
107.	Use of GPS in Agriculture <i>Divyam Nayak, Neeraj Pandey</i>	383-385
108.	A Study on the reasons behind the Farmers committing Suicide in India <i>Nikhil Puthran, Suhita Raghav, Poonam Prajapati</i>	386-388
109.	Smart farming using Cloud computing and Internet of things (IOT) <i>Nayan Chotalia, Adarsh Rao</i>	389-391
110.	Study of Benefits of organic Food and Homoeopathic Medicines in Management of various Food related Gastrointestinal Disorders <i>Dr. Uttara Agale, Dr.D.G.Bagal</i>	392-395
111.	Study of impact of Nutrition on Oral Health of College Students and the role of Information Technology to control and enhance the Oral Health <i>Dr. Vinita Gaikwad, Dr. Vaibhav Thakkar, Pankaj Mudholkar, Dr. Janaki Iyer, Dr. Prachi Gaikwad</i>	396-402
112.	Application Of Soil Moisture Sensor In Agriculture <i>Robin Singh Rawat, Saurabh Sawant</i>	403-404
113.	Uses of ICT in Agriculture <i>Zoyein Patel</i>	405-408
114.	Telematics in Agriculture <i>Aishwarya Ram, Anagha Patwardhan</i>	409-412
115.	A Study on Vermiculture and Vermicompost <i>Vineeta Phondekar, Apoorva Patil</i>	413-415