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From the Editor's

Dear Readers,

In the November issue of our Newsletter, we received several popular articles from diverse fields. All the authors deserve great appreciation for sharing articles in huge numbers. Please continue sending articles to our Publication team and share published newsletter with your friends also.

I would like to thank the Editorial team including Print, Designer and Publication committee for their efforts throughout the edition.

Your suggestions are always welcome for improvement.

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ORGANIC FARMING IN RICE - A HUMAN HEALTH PERSPECTIVE

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Organic agriculture, though not a new term but very relevant when we talk about sustainable agriculture. It has shown its global importance in terms of low-input, regenerative and environment-friendly form of new-generation agriculture. In India, organic cultivation of aromatic and basmati rice is well adopted in few belts. Moreover, organic sources of plant nutrients also evolved as quality rice production and in few instances enrichment of micronutrients, antioxidants, vitamins, fatty acids were also highlighted in organic mode of cultivation. In this article, an overall description of the beneficial effects of organic rice for meeting healthy lifestyle is being attempted which also addresses the sustainable development goals.

Keywords: Rice, organic production, health benefits, soil environment.

Introduction

Organic farming is a farming approach in which all the required inputs for crop production is provided from the organic sources. In recent years this approach is gaining popularity due to several reasons. Technological advances have made the agro-ecosystems high in net productivity but low in diversity, sustainability, and stability. Due to the deepening ecological crisis, resulting from indiscrete use of synthetic chemical fertilizers, there is a steady trend in increasing demand for organic production of agricultural commodities. Agriculture must not only continue to produce food to meet the demands of an expanding population, but should also increase the output in a sustainable manner, thus maintaining a healthy balance of agricultural ecosystem. Using expensive pesticides and synthetic inputs, modern conventional farming is currently dealing with sustained output with high input costs and weakening return surpluses.

On the contrary, organic farming prohibits the use of synthetic pesticides and emphasizes the use of natural

alternatives, such as biological pest control, crop rotation, and habitat diversification. This reduced pesticide application directly results in lower pesticide residue levels in rice. Further, organic farming practices often involve the use of organic fertilizers and soil amendments, which can enhance microbial activity and promote the degradation of pesticide residues. Consequently, the residues break down more rapidly, leading to shorter residue half-lives and lower residual levels in harvested rice. This often implies a direct benefit of organic farming.

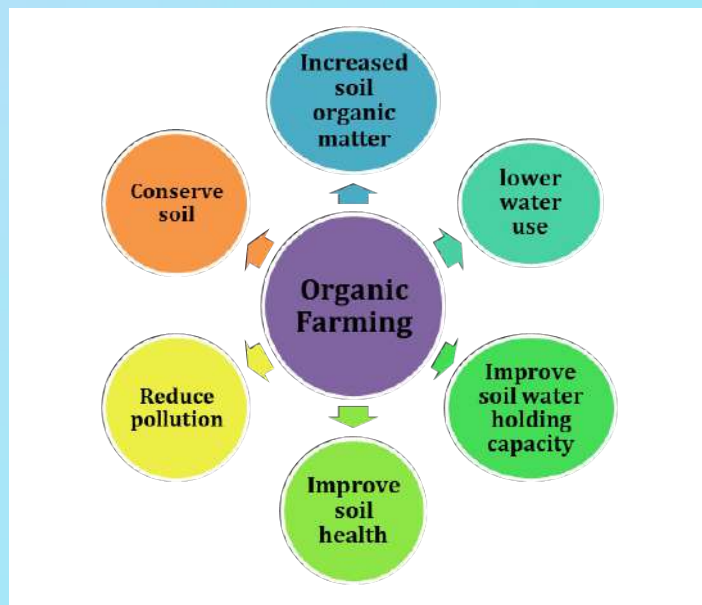


Fig. 1: Benefits of Organic farming.

The goal of organic management is to contribute to the improvement of overall sustainability. A farming approach known as "organic agriculture" tries to minimise any unfavourable effects in order to increase long-term soil sustainability while significantly reducing the usage of chemical fertilisers, pesticides, and genetically modified organisms. Organic farming is the system approach of crop production, observing the rules of the nature, targeted to produce nutritive, healthy and contamination free food, protecting the entire system of nature, maximizing the use of on-farm resources, minimizing the use of off-farm inputs, and avoiding the use of chemical fertilizers and pesticides. Organic farming shares many techniques used by other sustainable agricultural approaches (e.g., intercropping, crop rotation, mulching, integration of crops and livestock). However, the fundamental principles that distinguish organic agriculture as a special form of agricultural management are the use of non-synthetic natural inputs, enhancement of soil fertility and structure, and the adoption of a crop rotation plan.

However, considering the food safety and health, awareness is increasing in consumers and the demand for organic foods is growing as well. Some meta-analysis indicates that organic crops have higher antioxidant activity and higher concentrations of a range of individual antioxidants; increased intakes of polyphenolics and antioxidants has

been linked to a reduced risk of certain chronic diseases such as cardiovascular and neurodegenerative diseases and certain cancers.

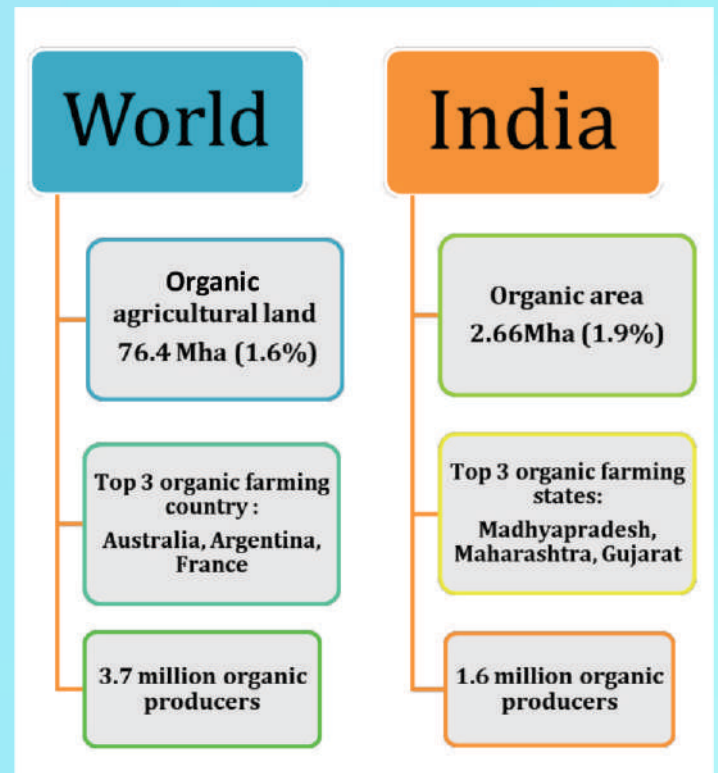


Fig. 2.: Status of organic farming in world and India. (Source: The World of Organic Agriculture. Statistics and Emerging Trends 2023).

Organic Farming in India

The era of Green Revolution during 1960s changed the entire agricultural scenario with the objective to increase the agricultural productivity. Farmers were introduced with the high-yielding seeds and synthetic fertilizers to meet the food demand and maintain food security. However, after 60 years of green revolution, indiscriminate and injudicious use of the modern agro-technology led to several setbacks in the production systems which made the policy makers to rethink the future trend of agriculture.

There are several reasons behind the need for organic farming in India –

- The organic food industry is booming and growing rapidly, ensuring high profitability.
- Food security needs to be ensured in the face of growing populations, degrading natural resources and declining resource supplies. This implies the need to increase production while assuring the viability and sustainability of the production system.
- Maintaining a clean and green environment is equally important.
- Organic food sales have been steadily increasing since the late 20th century. Growing environmental awareness, coupled with concerns about the health

effects of pesticide residues, has boosted the growth of the organic sector.

Total area under organic certification process (registered under National Programme for Organic Production) is 10.17 mha (2022-23). This includes 5.39 Mha cultivable area and another 4.78 Mha of wild harvest collection. Rice is the major crop which receives maximum quantity of fertilizer and pesticides in India which itself poses major challenges towards organic rice farming in terms of effective pest and nutrient management. India has tremendous potential to become a major exporter of organic rice in the international market. APEEDA made efforts to produce and export organic basmati rice, aromatic rice and other specialty rice varieties by establishing model farms in states like Punjab, Haryana and Uttar Pradesh. Whereas, in NE states two dedicated programs namely Mission Organic Value Chain Development for North East Region (MOVCD) and Paramparagat Krishi Vikas Yojana (PKVY) is in effect with the aim of assisting farmers to adopt organic farming and improve remunerations by getting premium prices of products including black rice. During 2021-22, India exported 2.4 Mt of organic Cereals & Millets and the major part was rice.

Organic farming in rice and impact on human health

Rice is a staple food for a large population in India as well as at global level. Rice is grown in most of part of the country, hence, uses most of the agriculture resources. Adoption of organic management in rice cultivation will bring a significant impact. Eating organic rice offers additional health benefits when compared with conventionally grown food crops, organic foods contain less pesticides and food additives, minimizing the exposure to harmful chemicals. From the standpoint of human health, organic farming, especially in rice production, provides several advantages. Some of the major advantages are as follows:

- ❖ *Low pesticide residue:* It is a matter of concern that rice is one of the high pesticides applied crops in India. The use of synthetic insecticides and herbicides, which can be detrimental to human health, is avoided in organic cultivation. This lowers the possibility of ingesting harmful substances through food. The lack of chemical residues in organic rice grains also means that they are safer for human consumption.
- ❖ *Lower contamination levels:* Organic farming practises also frequently result in products with lower contamination levels, such as heavy metals, which can build up in the earth and be ingested. This reduces the risk of exposure to harmful substances that can affect human health.
- ❖ *Better digestive health:* Organic rice is frequently produced using conventional techniques that make use of organic fertilisers like compost and dung. These techniques may result in the production of rice containing greater concentrations of advantageous bacteria, which may enhance gut health and general wellness.

- ❖ *Biofortification:* Organic cultivation may improve the Zn and Fe biofortification of rice, as organic farming can improve the nutrient composition of rice, such as iron, zinc, and selenium. However, it may not be enough to address nutrient deficits in communities that depend on rice as a food source.
- ❖ *Soil management and ecological balance:* Organic farming emphasizes the use of organic matter, compost, and crop rotation to improve soil health. Healthy soil with balanced nutrients can enhance the antioxidant capacity of plants, including rice. Organic farms often promote biodiversity by preserving natural habitats and encouraging beneficial insects, birds, and other organisms. This ecological diversity can have a positive impact on plant health and enhance their capacity of antioxidant defenses.

Organic management is necessary to avoid contamination of toxic substances from fertilizers and insecticides for cultivation of “medicinal rice” such as for diabetes (glycemic index < 55), chronic kidney disease (protein < 1/20), mental health (high gamma-aminobutylic acid or γ -aminobutylic acid in short GABA), gamma oryzanol (γ -oryzanol) and/or ferulic acid), and cancer prevention (high antioxidant capacity) (Watanabe et al. 2016). Phenolic compounds of cereal grains are important for human health as they have anti-inflammatory and anti-ageing properties. Evidence shows lower activity of phenolic components under chemical farming due to natural disruption of synthesis of antioxidants by higher accessibility of nitrogen (Macheix 1990).

In a field experiment conducted at the research farm of Indian Agricultural Research Institute, New Delhi, India in rice-wheat-green gram cropping system, it was found that Rice grain analysis for nutrients viz. Fe, Zn, Mn and Cu showed a significant increase in Fe and Mn content in the treatments having 2 or more organic amendments over control. Zn and Cu content also increased but the increment was significant with combined application of 3 or 4 organic amendments. The study revealed that addition of four organic amendments viz. BGA, Azolla, FYM and Vermicompost could give the optimum yield (4.05 t/ha) of organic Basmati rice and improve grain and soil quality (Singh et al., 2007). The highest N concentration in different parts of rice was obtained with 0.5 t Azolla ha⁻¹ + 3.5 kg BC ha⁻¹. Phosphorus concentration increased by 11% in grain, 17% in the husk, and 44% in straw. K improved by 16% and 21% in grain and husk, respectively. Organic manures alone or combined with BC led to a significant increase in micronutrient concentration. The highest Zn concentration in grain and straw was obtained with 5.0 t ECM ha⁻¹ (Didawat et al. 2023). In research performed at the research farm of the agriculture faculty of Nangarhar University, Afghanistan, during 2018–2019, result shown that AMRD and SDRD treatments increased protein, amylose, and lipid content and perfect grain content compared to RD treatment (Kakar et al., 2020). Reganold and Wachter (2016) found 12 out of 15 literature reviews

and meta-analyses showing evidence that organic is indeed more nutritious when it comes to higher levels of antioxidants, vitamin C, Omega-3 fatty acids and the omega 3 to 6 ratios. In another study conducted in China where rice was produced by organic and ordinary (conventional) farming. It was found that electron donating activities and superoxide dismutase (SOD) activities of methanol extracts from organically grown rice were higher than those of ordinarily grown rice. This may be better explained as Organic farming methods typically subject plants to lower levels of stress compared to conventional farming. This reduced stress, combined with improved soil health, can enhance the antioxidant capacity of rice plants. Antioxidants play a crucial role in defending plants against oxidative stress caused by various environmental factors (Na et al., 2007).

Organic farming practices can help to promote soil health, which can in turn promote the growth of healthier plants with higher nutrient content. It's important to note that organic farming methods are not a guarantee of higher nutritional quality, and other factors such as post-harvest handling and processing can also have an impact on the nutritional content of rice. Although the debate about whether organic is healthier than non-organic is still ongoing, it can be opined that pesticides can be harmful to consumer health and that rarely any study is there to found that organically sourced foods to be less healthy.

Organic farming in relation to SDG (sustainable development goal)

Over the last few decades, to meet the food demand of the growing population, the intensive agriculture has used new advanced/ modern technologies, different agrochemicals (chemical fertilizers, pesticides) etc. which caused negative impact on agricultural production as well as its sustainability. Intensive agriculture has already declined the ecosystem balance to some extent, biodiversity and increased the soil degradation, soil and water pollution etc. In near future it is very much needed to conserve our natural ecosystem, biodiversity, soil quality to meet the global food demand, as almost all food comes through soil hence better quality of soil is needed to get more harvest. There is a need to get more food in a sustainable way and it should be healthy. If we can achieve these targets to get more quality food, we can also achieve the sustainable development goal (SDGs) of FAO. Several reports and scientific literatures have suggested that to reduce the negative impact of intensive agriculture, organic farming can be considered as a viable solution. It is a production system which involves the natural inputs (on-farm inputs), crop rotation, legume-based cropping system etc. to enhance the agroecosystem balance, biodiversity, soil quality etc. Our objective should be to produce enough quality food to feed our growing population which also fulfill SDGs proposed by United Nations. There are several opinions that organic agriculture cannot meet the yield level as the conventional method, so the reduced production in organic farming may not support the future

food demand. But if we consider the long-term sustainability, the conventional intensive agriculture led to deterioration of soil and water quality and reduced the productivity as well as converting most the arable land to barren. This soil degradation is a major threat to our sustainable agriculture. Organic agriculture (addition of organic matter, crop rotation, cover crops etc.) can make our soil fertile and also convert the degraded land into fertile one in near future. Hence, the yield reduction in organic agriculture will not affect the production level as it also increased the soil quality and convert the degraded land into fertile land. Apart from these, the difference in yield (organic vs conventional) is more in case of the large farmer as they are equipped with advance technology, however, majority of the farmers are small and marginal and still they are depending upon traditional farming (belongs to resource-poor farmers so cannot afford advanced technology) hence mostly relying on the organic farming. Sustainable development does not mean to provide only food to all but it must be quality food. Intensive agriculture or modern techniques use large number of agrochemicals to get the higher productivity. Use of heavy amount of high-analysis chemical fertilizers year after year leads to deficiency of several micronutrients in soil. Deficient soil leads to produce lower quality food which also to be deficient in micronutrients. Micronutrients are very important for different metabolism in animals; hence the deficient soil also affects the metabolism in our body and caused several deficiency symptoms. Following the approach of organic farming, 'zero hunger' (Goal 2) and 'good health and well-being' (Goal 3) themes of SDGs can be satisfied since organic farming is well-connected with both the aspects. So, overall organic farming has a good prospect for environmental sustainability and quality food production. This is as per with national and global agenda of future agricultural demand.

Conclusion

Ensuring healthy lives and promoting the well-being at all the people is essential to achieve the goal of sustainable development. Organic farming practices can be a valuable tool for promoting sustainable agricultural development and improving the nutritional quality of rice and other crops. Findings of several studies showed customers' perception towards paying higher amount for organic rice which indicates organic rice cultivation has the potential to produce safer, more nutrient-dense products while lowering exposure to dangerous contaminants and pesticides. However, detailed, and wide scale studies are highly required to fill the strong evidential gap relating to the human health and co-benefits of organic rice cultivation. Moreover, organic farming is subjected to rigorous certification processes and regulations, ensuring adherence to specific standards. These stringent regulations help to maintain lower residue levels in organic rice.

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NATIONAL WILDLIFE WEEK CELEBRATION 2023

AWARENESS ON WILDLIFE CRIMES ASSOCIATED WITH PEACOCK: THOUGHTS, RECOMMENDATIONS & SOME OUTREACH EVENTS

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Peacock, as national bird of India under wildlife protection act: Peacock is a beautiful bird also regarded as national bird of India, protected under Schedule-1 of the wildlife protection act, 1972, with the highest degree of

protection. However, the act provides “certain exemptions under Sections 43, 44(4) and 49 (a) for transport, transfer and trade in peacock tail feathers within the country” (Wildlife protection act, 1972).

Peacock & wildlife crimes: Wildlife crimes related to peacock are where peacock is killed/ poisoned for their beautiful feathers. The feathers are being brutally uprooted out of the peacock's body and sold in the market. Blood stains happen to be at the base of uprooted feathers that are not naturally shed, therefore the perpetrators use scissors and cut the base of these feathers. As per a wildlife group in India (IRE-Jungle team members), the perpetrators now a days use a chemical solution to clean up the blood from the base of the peacock's feather, as such it is difficult to make out whether the peacock's feather have been naturally shed or they were illegally plucked first and the blood removed later (World Peacock Day Google meet, 2022).



Peacock feathers cut from the base to remove blood marks and sold in the market. In the picture the cut feathers are tied up with thread.

Awareness required on following points:

1. Do not buy peacock feathers from any vendors, if you see that the feathers are cut from the base, please do not buy peacock feathers, they may have been illegally traded and cruelly obtained.
2. Do not carry peacock feathers out of India for religious/ Vaastu/ other purposes. Also check customs/ wildlife/ quarantine rules and regulations. (<https://aqcsindia.gov.in/about-us-en.html>) (<https://cites.org/eng/disc/what.php>).
3. Do not buy peacock feathers from roadside vendors (<https://timesofindia.indiatimes.com/city/navi-mumbai/do-not-buy-peacock-feathers-from-roadside-it-may-be-a-wildlife-crime/articleshow/70898558.cms>) or any item

made from them such as earrings/ dress/purse/brooch etc, practice cruelty free sustainable fashion.

4. At international fashion shows traditional rounds consisting of real peacock feather dress have been seen (<https://www.dailymail.co.uk/femail/article-3305292/The-CRAZY-costumes-Miss-International-beauty-pageant-Miss-Venezuela-crowned-winner.html>). Such large-scale use of peacock feathers in fashion industry, appears to be unethical and cruel. These activities in fashion industry drive extinction of species and illegal wildlife trade (Mozer & Prost 2023). Sustainable fashion should be encouraged at national/international beauty contests/pageants and by high-end fashion brands.



Costume Pictures from Google images

5. Any environment awareness activity should be a zero-waste event. Art competitions, craft activities etc, generates waste material/adds up to extra waste generation that ends up in landfills. Activities like art competitions are not environment friendly because forests are cut to make paper and thus wildlife habitats are destroyed leading to species deaths and their extinction eventually (Mozer & Prost. S 2023).

parents living in Hong Kong, while their kids aged 2 to 10 years old participated in Quiz and wildlife/animal themed Hindi film songs fun activities. Green gifts were distributed among all the participants. This was a Zero Plastic and Zero waste event, sponsored by Science Together. The program was earlier planned for October 7, 2023 but had to be postponed due to Typhoon T3 warning to October 14, 2023.

Outreach events & awareness activities:

Awareness raised should be impactful. It can be done by hosting a variety of zero-waste events, in person as well as virtually. In the past I have collaborated with various non-governmental organisations & academic institutions to raise awareness on wildlife and urban biodiversity virtually and also real-time events.

Under National Wildlife Week 2023 celebration, we (Science Together (A global network of environment experts & enthusiasts) in collaboration with Indian science communication society, ISCOS, India), organised various awareness & outreach activities among kids in both rural areas in India as well as highly urban non-resident Indian families in Hong Kong. These activities include a talk about useful information on Indian wildlife acts related to wild animals with special reference to Peacock with the young



The national wildlife week celebration 2023 activities in India were celebrated by Primary school Pipariya, Bareilly and Science Together (A global network of environment experts & enthusiasts) in collaboration with Indian science communication society, ISCOS, India.



National wildlife week celebration 2023 with the Indian diaspora at Icon Park, LOHAS, Hong Kong was planned on October 7, 2023. This program was then rescheduled to October 14, 2023 due to T3 Typhoon warning. The program was organised by Science Together (A global network of environment experts & enthusiasts) in collaboration with Indian science communication society, ISCOS, India.

Additionally, I was also invited for a round table discussion by Indian biodiversity conservation society, (IBCS) in November 2022, where I talked about the aesthetic aspects

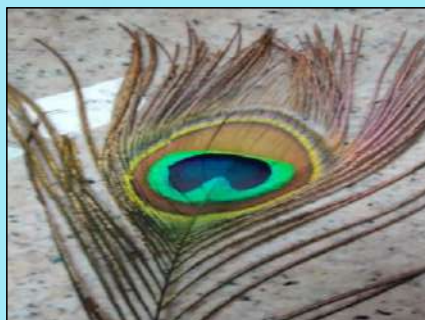
of peacock and ideated about some Hindi film songs that can be developed into fun activities.



A screenshot of the round table discussion held via google meet organised by IBCS, India.

A major part of this article has been presented as an invited talk under round table discussion on World peacock day celebrated by, Indian biodiversity conservation society (IBCS). Additionally, University of Lucknow, India also

celebrated 'International Peacock Day' on 15th November 2022 in collaboration with other environment protection bodies and Oil & Natural Gas Corporation (ONGC), India.



Peacock feathers and their vibrant colours.

Aesthetic beauty of peacock feathers consists of nature's intricate patterns that can be proved geometrically, vibrant characteristic colours and patterns that has specific functions such as reproduction and has inspired patterns and designs/motifs in numerous Indian textiles (paithani sarees, phulkaari, kantha, kalamkaari sarees) fabrics (silk, cotton, block printed and embroidered handloom fabrics), heritage, architecture (in mughal and ancient architecture of India), paintings (Lal, K. 2006) and even music ("swara" of north Indian classical music), with also many popular songs from hindi cinema (*Jungle mein mor naacha* (Shatranj, 1969), *Morni baaga ma bole* (Lamhe, 1991), *Mhare hewda mein naache mor* (1999), etc). All these physical and abstract bi-products are being sourced from the beauty of peacock. The peacock being inexistent in nature, we would have been devoid of many of these pleasures. Also, not to forget about the magnificent peacock dance that is seen during its breeding season to attract female peahen.

Buying peacock feathers/ and its products encourages killing and illegal trade of peacocks. Due to poaching, the green peafowl is evaluated as endangered and is on the IUCN Red List of Threatened Species already.

As such it is our duty and responsibility to be ethical in our behaviour while dealing with wildlife. Whether we go for a nature tour, visit national park/natural reserves/forests, we should be respectable towards wildlife. If we go shopping in an urban mall or city streets, please see that we are not buying wildlife products. Let's be aware and sensitive about wildlife, towards wildlife. After all don't we want our future generations to see these animals in real and enjoy their aesthetic beauty the same way previous generations have enjoyed? The answer to this question lie in our actions and not words.

Dr. Kavyanjali Shukla

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ROLE OF ICT IN IPM OF FRUIT CROPS

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Abstract

India is the 2nd largest producer of fruits in the world and key exporter also which makes India get valuable monetary returns through foreign exchange. So in this context it is very important to improve our production and productivity but pest and diseases causing severe losses in fruit cultivation. So implementing effective IPM practices to control harmful organisms such as pests, pathogens, weeds, rats etc., is one technique to avoid losses in production and to avoid chemical residues on harvested produce which is also a major concern now a days by consumers. Information and communication technology (ICT) are one of the advanced technologies, which is playing a very crucial role in adoption of IPM (Integrated Pest Management) practices among farmers. ICT helps in creating awareness and training the farming community regarding the usage of IPM practices.

Keywords: ICT tools, IPM in Fruit crops, Control of insect pests.

India ranks 2nd in terms of production of fruits after Brazil. India's share in world production of fruits is 13%. Total area under fruit cultivation is 6.70 M Ha & total fruit production in India is 102.02 MT (NHB data 2019-2020). Insect pests, diseases & weeds are the major limiting factor in successful cultivation of fruit crops. Plant protection is one of the most important practices in farming to get optimum yields. Pests, diseases & weeds causing severe losses to farmers affect crop plants. 20 - 40 % loss of global agricultural productivity is due to pests, diseases and weeds. (Oerke, 2006). Using pesticides, fungicides, herbicides gives instant control in the field, but in long-term they are causing severe damage to soil, water & environment. Pesticide or herbicide residues in harvested produce causing severe illness to humans.

In order to reduce the usage of harmful chemicals in crop protection practices, farmers should adopt IPM practices for crop protection which is effective & economical method to control pests, diseases & weeds. But the problem is awareness about these IPM methods and their benefits in farmers is very low and their readiness to adopt these techniques is low (Sahu et al., 2019).

At this moment use of Information and Communication Technology which has become a one stop solution in every

major areas of society like transportation, education, banking, agriculture etc. for creating awareness about IPM practices, and for training farmers about use of IPM practices plays a key role in smart farming.

The use of ICT in agriculture is paving the ways for advanced and modernized form of agriculture. Tools of ICT like wireless technology, GPS, GIS, computer-controlled devices, smart phone apps are changing the way of doing agriculture in developed & developing nations. One among the many applications of ICT in the agriculture field is pest control.

Role of ICT in control of insect pests of fruit crops:

Components of ICT like personal computer software's, digital monitors, smart phones, autonomous robots, drones etc. helps in gathering, storing, retrieving, adapting, localizing & disseminating the information to farmer communities (Davison et al., 2005)

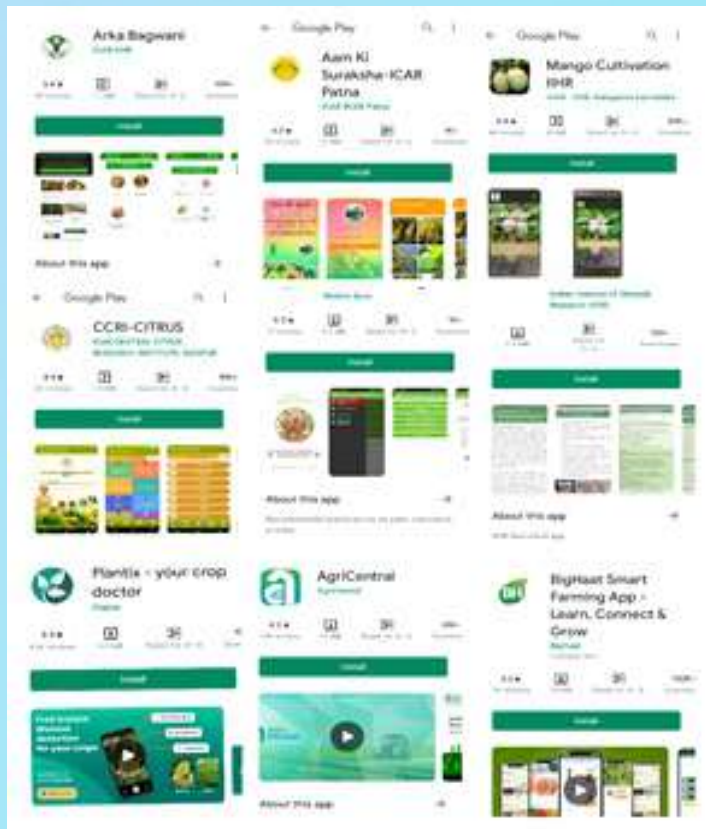
In other developing countries like China, using unified data management technology, an ICT platform was developed for a national priority project, entitled "Monitoring, Forecasting and Controlling of Fruit borers in North China (Fruit Borer project) for 2008 -2010. Since then the Fruit BorerEx (Fruit borer project) platform was offering its information services through numerous paths such as telephone, fax, data transmission, radio, television, videoconferences, callcenters, podcasts, webcasts. (Gao, 2012).

ICT based techniques for pest surveillance (e-surveillance), pest forecasting with the help of sensor devices, GPS and available weather data and by utilising modern computer methods helps in creating better IPM strategies for orchardists to manage pest menace.

As now-a-days atleast one member of farmers family had smart phones it has become easy to provide agriculture related pest solutions to individual farmers to a specific crop in a specific region. In other countries ICT initiatives such as IPMNet, AfricaIPMLink, IPM CRSP has developed ICT channels for dissemination of information regarding farming (Singh et al., 2018). In India initiatives such as Help line services, e-extension (www.sch.gujarat.gov.in), ITC e-choupal (www.echoupal.com), Village Knowledge Centre, Kisan call centers, Krishi, i-kisan, i-shakti websites provide useful information to farmers. (Singh and Meena, 2010). Agri extension programmes are telecasted in national channels, regional channels & narrow casting clusters of Doordarshan which are creating awareness among the Farmers about harmful effects of pesticides & benefits of IPM practices & use of natural enemies for crop protection (Singh and Meena, 2010).

Digital Green a global development organization, an independent NGO that focuses on training farmers to make

& show short videos where they can record their problems, share solutions and highlight success stories. Digital Green works across seven states in India and parts of Ethiopia, Ghana and Afghanistan.



Different Apps for Horticulture developed By ICAR and other private organizations- Providing valuable information on crop related aspects like pest and diseases, weather, market etc.

Indian Council of Agricultural Research (ICAR) has developed several smartphone applications such as Arka Bhagwani, Farm tree, Groundnut IPM, ICAR IOR Biocontrol, CCR Citrus, Mango Cultivation IIHR, Oil palm pests and many others.

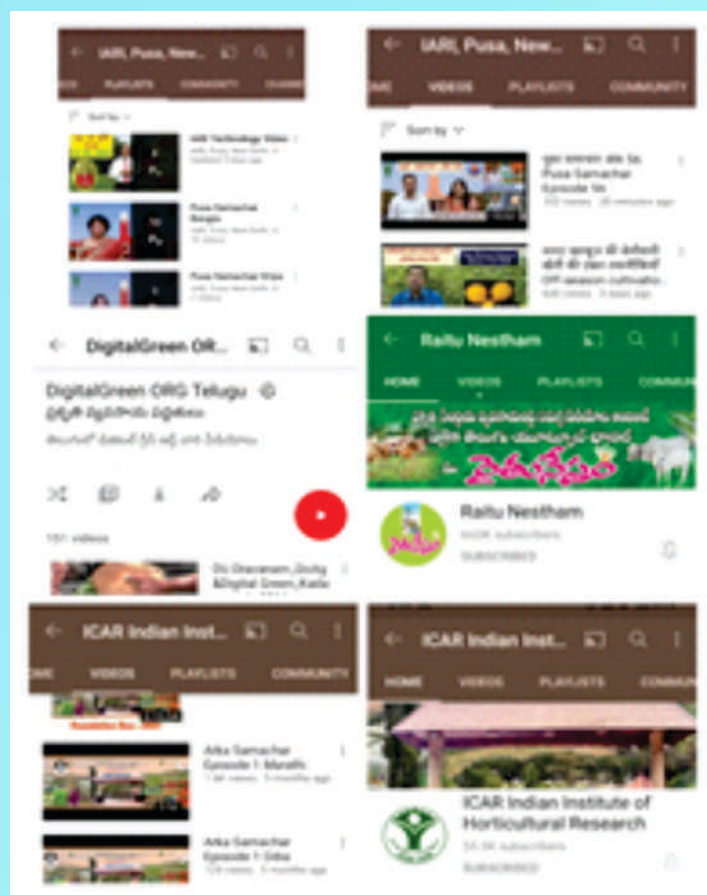
Arka Bhagwani is a smartphone application from ICAR IIHR it includes data on newer techniques of crop production, crop protection (pests, bio control methods, uses), seed and planting material availability at IIHR institute.

Farm Trees smartphone app is developed and maintained by ICAR-CAFRI, Jhansi, UP -It provides Tree protection, pest and disease information related to Forest trees.

Oil Palm pest's app gives information on all the related pests of oil palm like Rhinoceros beetle, scales, mealy bug, slug caterpillar, birds, rats etc., their symptoms and management practices.

And Start ups like Plantix which is a mobile crop advisory app for farmers, extension workers and gardeners enabling them to access local weather, get good agricultural advice throughout the season and receive pest and disease alerts during particular outbreak in their surroundings. Plantix app cooperates with International research Institutes and Inter governmental organizations such as ICRISAT, CIMMYT, CABI.

ICAR also giving crop advisory through YouTube channel Pusa Samachar through various Indian languages like Telugu, Tamil, Kannada, Oriya and Bengali. And many State Agri and Horticulture universities also initiated such advisory channels in YouTube where they showing videos on crops and their serious pests in that area and different IPM practices to taken by the farmers in that particular season.



IARI, IIHR and many other state agri-horti Universities are providing IPM strategies, month wise cultural practices in orchards and other crops through YouTube channels.

Maharashtra State Horticulture department adopted ICT based pest surveillance for Horticultural crops especially fruit crops such as mango, pomegranate, banana and it is further extended to other fruit crops like sapota, Nagpur mandarin and sweet orange. They named this project as Horticulture Pest Surveillance and Advisory Project (HortSAP) which was initiated in 2011-12. (Vennila et

al.,2012).There is a need that every state in India should incorporate HortSAP like ICT based IPM strategies to improve productivity of fruit crops which helpful to make India to become world's number one in fruit production and productivity.

Conclusion

Usage of pesticides and herbicides for pest control is leading to environmental pollution and indirectly affecting humans as pesticide residues remain on harvest produce which then consumed by humans and animals leading to life threatening conditions like cancer, neurological diseases, infertility etc.By keeping in view, the adverse effects of chemicals in plant protection practices, it is necessary to adopt environmentally safer techniques such as IPM practices for crop protection. In pest control system it is important to know when the pest is ready to attack a crop, what weather conditions are favorable for pest infestations so to take up the IPM Practices in the early stages of infestation and ICT helps in creating awareness and training the farming community about these things and it also create awareness about the harmful effects of chemical pesticides & benefits IPM methods and their usage.

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Editorial board members of NESAs newsletter will be revised for the year 2023. All the interested applicants may send their curriculum vitae to **Editor in Chief** by **31th Dec., 2023**.

IMPORTANT DAYS, EVENTS AND FESTIVALS IN THE MONTH OF NOVEMBER 2023

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November 1: World Vegan Day

World Vegan Day is observed annually on November 1st to increase public understanding of the advantages of a vegan diet and veganism in general. On November 1, 2022, the inaugural Vegan Day was observed to mark the 51st anniversary.



3 November: World Jellyfish Day



World Jellyfish Day has been scheduled to occur in the springtime in the southern hemisphere because this is the time of year when jellyfish begin to migrate to the

coastlines of the northern hemisphere.

3 November: World Sandwich Day

John Montagu, 4th Earl of Sandwich is believed to be the sandwich's namesake due to the claim that he invented it. This holiday celebrates the variety of flavours present in the standard evening meal.



November 5: World Tsunami Awareness Day



On November 5th, it is recognized as World Tsunami Awareness Day to raise awareness of the risks posed by tsunamis and the value of early warning systems in reducing natural disaster damage. To raise

awareness of the problem, many groups disseminate traditional knowledge about tsunamis.

6 November: National Nachos Day

On November 6, National Nachos Day is observed to honour the dish that is widely eaten at sporting events across the nation. Nachos are just tortilla chips covered with salsa and melted cheese, whether it be nacho, queso, or another sort.



7 November: Infant Protection Day



Infant Protection Day, which is commemorated annually on November 7th, aims to increase public awareness of the significance of safeguarding, promoting, and developing children. Infants, who are the citizens of tomorrow, will without a

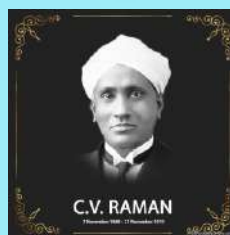
doubt shape this world's future if they are protected. The future of the world must be protected.

7 November: National Cancer Awareness Day

To increase awareness of cancer and make it a global health priority, November 7 is National Cancer Awareness Day. In order to increase public awareness of the issue, Dr. Harsh Vardhan, a former Union Health Minister, founded National Cancer Awareness Day in 2014.



7 November: Chandrasekhara Venkata Raman Birthday

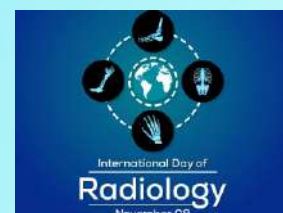


Chandrasekhara Venkata Raman, popularly known as C.V. Raman, was born in Tiruchirapalli, Tamil Nadu, on November 7, 1888. The Raman effect, in which light travelling through a material is scattered and the wavelength of the scattered light changes due to an energy state shift in the material's molecules, was

discovered by C.V. Raman, who won the Nobel Prize in Physics in 1930.

8 November: World Radiography Day

Radiographers all around the world can take advantage of the day and the days leading up to it to promote radiography as a profession, as a crucial component of contemporary healthcare, and as an opportunity to raise public understanding of radiation treatment and diagnostic imaging.



9 November: National Legal Services Day



The ninth of November is recognized as National Legal Services Day in India to increase awareness among citizens in communities with low levels of legal literacy.

10 November: World Science Day for Peace and Development

Every year on November 10, the world celebrates World Science Day for Peace and Development to honour the value of science in modern society. It also underlines how crucial it is to



include members of the public in conversations regarding cutting-edge scientific topics.

10 November: World Usability Day (2nd Thursday in November)



World Usability Day is observed on the second Thursday of every November. World Usability Day falls on November 10th this year. On this day, many communities get together to celebrate how we can all work together to improve the world.

11 November- National Education Day

It is observed on November 11 to mark the anniversary of the birth of Maulana Abul Kalam Azad, India's first minister of education. The Minister served as India's first autonomous education minister from 1947 to 1958.



12 November: World Pneumonia Day



On November 12th, there is a celebration of World Pneumonia Day to increase public awareness of the disease and its prevention. Children under the age of five are most affected by this, which is said to be the most common

infectious disease in the world.

13 November: World Kindness Day

The annual World Kindness Day is observed on November 13th. This day's major objective is to provide everyone the opportunity to consider and uphold one of the most significant and distinctive human concepts. This day also encourages modest deeds of goodwill.



14 November: Childrens Day, Jawaharlal Nehru Jayanti



Children's Day is observed in India on November 14th of each year. Bal Divas is another name for this. People are educated about the rights, care, and education of children on this day. Jawaharlal Nehru, India's first prime minister, celebrated his birthday

on this day. The day is meant to honour Kalam's contributions to students and education.

14 November: World Diabetes Day

The first Prime Minister of Independent India was born on November 14, 1889, in Allahabad, Uttar Pradesh. Children's Day is marked in India on the anniversary of Jawaharlal Nehru's birth.



16 November: International Day for Tolerance



On November 16, the International Day of Tolerance is observed to raise awareness about the importance of tolerance by encouraging mutual understanding among cultures and peoples. By resolution 51/95, the UN General Assembly invited UN Member States to observe the International Day of Tolerance on November 16, 1966.

17 November: International Students Day

The Nazi troops established International Students Day on November 17, 1939. On this day, there were 9 student leaders, and the students' bravery during this incident was exceptional.



17 November: National Epilepsy Day



National Epilepsy Awareness Day is November 17th. In this regard, the primary goal is to raise public awareness of epilepsy disease, its symptoms, and its prevention. Epilepsy is thought to be a chronic brain disorder marked by recurrent seizures or "fits." This has been observed to affect people of all ages,

and each person has their own set of concerns and problems to deal with.

17 November: World Chronic Obstructive Pulmonary Disease Day or World COPD Day

Every year on November 17th, World Chronic Obstructive Pulmonary Disease Day, or World COPD Day, is observed. This year's theme is "Healthy Lungs - Never More Important."



19 November: World Toilet Day



Every year on November 19th, World Toilet Day is observed. This day is primarily about inspiring people to address the global sanitation crisis and achieve Sustainable Development Goal (SDG) 6, which promises sanitation for all by 2030. According to UNICEF and WHO, approximately 60% of the global population, or approximately 4.5 billion people, do not have toilets at home or do not know how to properly dispose of toilet waste.

20 November: 'Universal Childrens Day

Every year on November 20th, Universal Children's Day is observed. This day is primarily intended to promote



international cooperation, raise awareness among children worldwide, and improve children's welfare. On November 20, 1954, Universal Children's Day was established.

21 November: World Television Day

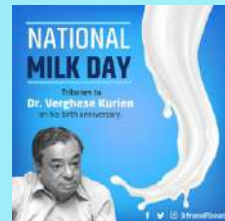


Every year on November 21st, World Television Day is observed. According to the UN, on this day, the daily role of television is highlighted as it presents various issues that affect people. This day is observed as the acceptance of

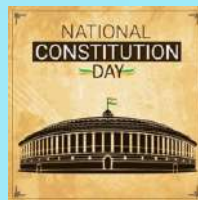
the impact and reach of geo-televisual communication on the global scenario.

26 November: National Milk Day

It is observed on 26 November to commemorate the birth anniversary of Dr. Verghese Kurien, the father of India's White Revolution.



26 November: Constitution Day of India



Every year on November 26th, India observes Constitution Day, also known as Law Day or Samvidhan Divas. On November 26, 1949, India's Constituent Assembly adopted the Indian Constitution. This took effect on January 26, 1950.

INTERNATIONAL CONFERENCE ON 'SUSTAINABILITY, GLOBAL DIVERSITY, INCLUSION & CULTURE; INTERDISCIPLINARY PERSPECTIVES' ORGANIZED BY DEPARTMENT OF EDUCATION, UNIVERSITY OF CALCUTTA

S. K. Basu

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A two-day International Conference on 'Sustainability, Global Diversity, Inclusion and Culture; Interdisciplinary Perspectives' was organized under the conensorship and leadership of Prof. Santoshi Halder, Department of Education funded by Indian Council of Social Science Research (ICSSR) in collaboration with National Library of India, Ministry of Culture, Government of India.

Over 300 scholars, faculty members, teachers, and educators from all over India and across 10 countries & over 50 Universities/ institutes from all corners of India and participated in this mega conference in various capacities across the disciplines for stimulating discussion and brainstorming on the Conference theme. The objective was to collectively map a sustainable INCLUSIVE global society and community for all.

The two days international conference was an amalgamation of eminent speakers and specialists from various Universities and institutions across allied disciplines and various countries that reinforced the minds of all ages be it the young budding students and research scholars including the experienced faculties and stakeholders. I am sure the deliberations, suggestions, experiences, and ideas shared during this 2-day national conference will surely shed light on ways to ameliorate proper strategies and approaches for enhancing the quality of education in our country and stimulate us in making our society and community more inclusive, accessible, and sustainable for all as conveyed by the Conference Convenor Prof. Santoshi Halder.



The Conference began with the inaugural session with the gracious presence of the key dignitaries; Santa Datta (De), Vice Chancellor, University of Calcutta, Prof. Ajay Pratap Singh, Director General, National Library of India, Ministry of Culture, Govern of India, Melinda Pavek, US Consul General. Prof. Ratna Ghosh, Distinguished James McGill Professor Emerita, McGill University and Prof. Norimune Kwai, Deputy Executive Director, Hiroshima University, Director, Institute for Diversity & Inclusion, Hiroshima University, Japan delivered the keynote address.

Over twelve special talks, panel discussion, three virtual presentations, one hands-on workshop on inclusive practices on areas such as Universal design, accessibility and alternative technologies, inclusive practices, and strategies, were delivered by specialists & experts from ten country representatives across various disciplines.

The Conference provided a platform for the marginalized and socio-economically disadvantaged to share their stories to the larger audience through the session 'My own Voices; as first-person accounts'. The women who scaled the Everest midst all odds (socioeconomically disadvantaged), plight of the Tiger Widows (reflecting socio-culturally marginalized), an autistic student from Hungary sharing her story & her perception of the world



from 18 states of India and 11 countries through a total of 20 technical sessions categorized under 20 subthemes of the conference to reflect more specifically the conference overall objective.

The session were chaired by specialists from some of the best Universities/ Institutes not only from all corners of India but also many other renowned Universities outside the country to name a few; JMI, Delhi University, JNU, SNDT University, Punjab University, IIT, Ropar India, University of Minnesota, USA, University of Dundee, U.K, University of Education, Germany, Eotvos Lorand University (ELTE), Hungary, Oslo Metropolitan University, Norway, Hiroshima University, Japan, University of Thessaly, Greece, University of South Africa, South Africa etc.

Presenting the conference theme through Nriya Natika by renowned Indian Classical dancer and much acclaimed Fulbright scholar Priyadarshani Shome; 'Dance with Me, We, Us' was a special attraction and a culture boost for the conference audience.

Four best paper presenters were conferred to young scholars based on carefully identified crucial parameters assessed by the chairpersons of the technical sessions.

One of the special features of the conference was conferring the three notable achievers midst all odds selected from diverse background studying in various Universities. The objective was sensitizing the general masses towards the strengths of the people with diverse needs.

The conference culminated with the valedictory address by Prof. Rajkumar Kothari, Vice Chancellor, Sanskrit University, and the Valedictory talk by the Dr Dipyaman Ganguly, IICB, Shanti Swarup Bhatnagar Awardee (Medical Sciences).

Needless Prof. Halder says, interdisciplinary collaboration is the key pathway for a sustainable, inclusive, and equitable society. Prof. Halder pointed out that many of the

through her own lens, including a farmer, a teacher, a social activist from a Nagaland village. The session reflected the strengths and challenges and the wide range of diversities, socio-economic and socio-cultural marginalization prevailing in our society and highlighted the need and importance of inclusion reflecting the conference theme.

The conference also included an overview on India Autism Centre (IAC); Asia's largest residential autism center that we have in India and their services for people with autism.

A total of 143 papers were presented during the conference

current global problems can be addressed by accepting & embracing Diversity. Well said by one of the international experts that such event can add significantly bringing strategic change for making the society and community inclusive. Prof. Halder believes events like this are a

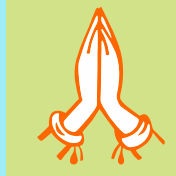
notable step indeed in sensitizing the general masses not only towards the needs and importance of facilitating the inclusion and participation of people with diversities but also for highlighting their ingenious strengths.



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