



**ASSOCIATION OF RETIRED INDIAN COUNCIL OF AGRICULTURAL RESEARCH EMPLOYEES
(ARICARE)**

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ARICARE NEWS

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From the President's Desk

Senior citizen in India is defined as a person who has attained the age 60 years. According to Population Census 2011, there are nearly 104 million elderly persons in India; 53 million females and 51 million males. A report released by the United Nations Population Fund and HelpAge India suggests that the number of elderly persons is expected to grow to 173 million by 2026; by 2050 one fifth of the country's population will be aged, thereby ending the demographic dividend it is enjoying today. The report predicts that nearly half of them will be from the lower socio-economic sections of society. Out of these, 71% will be from rural India and 50% would be women and widowed. The report also points out that India has nearly 3 million [elderly](#) who are destitute and 93% of the elderly belong to the unorganized sector with no post-retirement benefits. What's more worrying , is the fact that a big percent of them are living alone, and the number has been rising over the past few decades, as evident from the data in different reports.

People worldwide are living longer owing to rising health standard and improvements in medical amenities. After spending decades of ones' life fulfilling professional commitments, the senior citizens look forward to living remaining years stress free and want to retire from work but not from life and wish to contribute to the society. This means that retired people still need a steady stream of income to meet house hold and medical expenses to fulfill the retirement dreams without depending much on children or lowering standard of living. Hence, some volunteering or paid avenues need to be made available for senior citizens where they can not only contribute their rich experience, but also feel useful. Surveys ,however , have found that one out of every six older persons living in urban areas in India , aren't obtaining proper [nutrition](#), one out of every three older persons , does not obtain sufficient [health care](#) or medicine, and one out of every two older persons , don't receive due respect or good conduct from family members or people in general.

The document [‘UN Principles of Ageing’ \(1982\)](#) is considered the basic guideline for promotion of the rights of senior citizens. The International Day of older persons is celebrated annually on 21st August. The day is dedicated to increase awareness about the issues that affect older adults. The World Senior Citizens’ Day also recognizes and acknowledges the contributions of older people to the society. Elderly rights are one of the fundamental rights of [India](#). We already have economic and social policies to tackle issues related to the elderly. The [National Policy on Older Persons](#), the [Integrated Program for Older Persons](#) mentions national and state level economic and social schemes for older persons. [Maintenance and Welfare of Parents and Senior Citizens Act, 2007](#), aims at serving the elderly , live in self-respect and peace. The act includes provisions to guard India's senior citizens besides specifically prescribing the State’s role in taking care of them. Section 19 of the Maintenance and Welfare of Parents’ and Senior Citizens’ Act (MWPSCA), 2007 mandates the State Government to establish at least one old age home in each district, with a capacity of accommodating at least 150 senior citizens in need. But the reality is far from the expected numbers. The National Policy on Older Persons , 2011 mentions regarding promoting the concept of ‘aging-in-place’ and ageing in own home and also home care services.

The critical issue is how far these schemes are being implemented. A study on social security by Tata Institute of Social Sciences showed that although 40 per cent of the elderly were aware of the concessions for train travel, only nine per cent availed of them. Thirty-Seven per cent of the elderly were aware of the bus reservation in seats for the elderly but only eight per cent availed of the facility. So despite the changes in our social environment and senior’s own mindset, the challenges still remain.

From Secretary’s Desk

I congratulate ‘**e-Journal**’ sub-committee for timely publication of volume 4(1) of *ARICARE news*. The *ARICARE news* was started its journey in 2017 as a bi-yearly e-newsletter with the initiative of the then

'e-journal and Facebook' sub-committee and the first issue of volume-1 was published in January, 2017. The *ARICARE news* has gained name & fame among the retired and serving employees of ICAR beside others.

The different Sub-committees of ARICARE formed for the year 2019-2020 are functioning very nicely. The 'Tour' sub-committee has already completed two domestic tours: the one, to Ranchi-Netarhat-Purulia during July 2019 and the other to Amritswar-Chandigarh- Dharmasala- Dalhousie during November, 2019. Due to constant efforts of ARICARE, Medical ID cards have been issued to the pensioners from CRIJAF and NINFET for cashless indoor treatments in a number of reputed private hospitals. Efforts are being made to extend the facility in some more Hospitals. I congratulate the Administrations of CRIJAF and NINFET for their very positive views and bold steps in this regard. The picnic organized by 'Picnic, get-together and cultural' sub-committee in the new year on 5th January,2020 in Anandapur, Kolkata was postponed due to bad weather condition and it was held as rescheduled on 18th January, 2020. I am very happy to inform that ARICARE will soon launch its own website. The details regarding ARICARE website will be communicated shortly on completion of launching

Being in ICAR family , it is a great concern for all of us that, burning of crop residues and agricultural field wastes on a large scale has become a massive source of air pollution in India besides the emission from vehicles, burning of fossil fuels and firecrackers. India is already ranked [third largest](#) in emission of greenhouse gases after China and United States. According to the 2016 Environmental Performance Index (EPI) , India [ranked](#) 141 out of 180 countries surveyed. The severity of air pollution is so much that life expectancy among Indians, on an average, [reduces](#) by 3.4 years while among the residents of Delhi it [reduces](#) by almost 6.3 years. It is found that, around the world, more deaths occur due to poor air quality than due to poor water quality. Air pollution leads to low birth-weight, tuberculosis, ischemic heart disease, cataracts, asthma, various allergies and cancer.

It can also cause the degeneration of blood-brain barriers, leading to oxidative stress, neuro-inflammation and damage of neural tissue. [Recently, link has been established between air pollution and Parkinson's and Alzheimer's disease.](#) One of the major components of air pollutants arising from burning of crop residues and biomass is PM_{2.5} besides, emission of toxic gases. PM_{2.5} (particulate matter 2.5 micron or less) are so small that when inhaled they can enter the blood stream. Exposure to fine particulate matters can cause short-term health effect such as eye, nose, throat and lung irritation, coughing, sneezing, running nose and shortness of breath. When the level of PM_{2.5} in outdoor air increases, the air appears hazy and visibility is reduced. These conditions are similar in appearance to high humidity or fog.

Usually, Government agencies use Air Quality Index (AQI) for reporting daily air quality status. An AQI between 0-50 is considered 'good', 51-100 'satisfactory', 101-200 'moderate', 201-300 'poor', 301-400 'very poor' and 401-500 'severe'. An AQI above 500 falls in the 'severe plus' category. In India, AIQ is calculated considering 24 hour average concentration of PM_{2.5}, PM₁₀, O₃, NO₂, CO, Pb, NH₃ and SO₂ in air.

The major suffers due to poor air quality , are the children. According to some survey , air pollution is [linked](#) to diseases and infections that kill around 600,000 children less than five years of age per year in India. Many school children in Delhi are growing up with irreversible lung damage which they will never recover. There are more hue and cries over poor air quality in [Delhi](#) but, on many occasions [Kolkata](#) has surpassed Delhi to become the most polluted city in India. AQI in Kolkata frequently reaches to 'very poor' level crossing the 300 mark as per the WBPCB. According to All India report , more people die in West Bengal due to acute respiratory infection than in any other state. Kolkata, is likely to have the highest premature deaths by 2025 (approximately 55,000), followed by 52,000 in Delhi and 33,000 in Mumbai due to air pollution.

Editorial

Members of '**e- Journal' Sub – Committee** constituted for Association of Retired Indian Council of Agricultural Research Employees (ARICARE) have completed the task of the preparation of e- journal for the period from August , 2019 to January , 2020 and the issue published as **Vol. 4 No. 1** is presented herein for the perusal of everyone. We , the Members of the Sub – committee , are communicating our best wishes for the New Year to all members of ARICARE / their family members and all readers of ARICARE News with a trust that this year will definitely bestow sound health and enhanced prosperity to everyone around us.

Many – a- times , elderly persons feel isolated and neglected and thus there is a need to have a group rather remaining alone and ARICARE being registered during 2014-15 is a stride to make ICAR Pensioners felt confident to leap forward with determination . We can't forget that Animal Kingdom from Ant to Elephant has a natural inclination to live in group. The issue of ARICARE News is a compendium of our various activities being carried out during the period of past 6 months in this association so that we , the Pensioners can not remain secluded but on the other hand , are engrossed both in Societal relationship and also in Scientific pursuits.

Maintenance of proper health , being the vital necessity of every one and particularly to the elderly persons , has been taken care by Indian Council of Agricultural Research (ICAR) in issuing the Identity Cards for **indoor medical facility** and ARICARE has been striving consistently in making the medical facility extended to ICAR Pensioners and their dependents . As such , a no. of empanelled hospitals/Diagnostic Test Centres as brought under approval by ICAR Institutes , are now available in and around Kolkata as well as in North East India.

Government of India has set a target of doubling of farmers' income by 2022-23 , which is central to promote farmers' welfare, reduce agrarian distress and bring parity between income of farmers and those working in non-agricultural professions.

Innovations in Agri and allied activities , being attempted herein in ARICARE News , are to get an insight into the discussed domain , may turn out to be valuable both in production and commencement of entrepreneurial endeavour and thus the young farmers who are presently not very keen to remain in farming , may get encouraged after exploring the financial possibilities. Through the wrap up of News and Technology Summary , many of our Pensioners who have a long service career in Research and Extension of Agri and allied activities , may get an update in Technology and in near future, Pensioners' association may also step forward in disseminating their expertise among the users of Agri – technologies. We pray for the welfare of everyone with a look ahead so that our journey to have a better future will get blossomed.

Meetings and Events

Ilish Festival

ARICARE organised Ilish Festival (Utshov) , held on 2nd September,2019 at ICAR-NINFET, Kolkata. Sixteen members had participated in the festival.

GB Meeting

First Governing Body Meeting for 2019-20 was held at ICAR-CIFE Regional Centre, Salt Lake . Kolkata on 30th September,2019. Eighteen persons had attended the meeting and various issues to have proper functioning of the Association were discussed.



Vijaya Sammilani

Vijaya Sammilani programme of Association of Retired ICAR Employees was held on 02.11.2019 at ICAR-NBSS & LUP, Regional Centre, Salt Lake, Kolkata and ARICARE members along with their families had attended the programme . Cultural programme with the exchange of Shuvo Vijaya Greetings among the members , was also organized. Some of the photographs of the programme stand for mention.



Domestic Tour

As a part of the activity of ARICARE , domestic tour was arranged to visit Amritsar and some parts of Himachal Pradesh i.e. Dalhousie, Dharamshala, Khajjier, Palampur , Jwalamukhi and Chintpurni.

The tour **from** 28.11.2019 to 05.12.2019 was started after visiting Golden Temple, Jalinwalabag, Waga Border parade, Durgiana Mandir etc. Nine persons including family members participated in the tour.



Caption: Upper - 1. Golden Temple, Amritsar; 2. St. John Church in the Wilderness, Dharamshala
Lower - 1. Dalai Lama's Main Temple, Dharamshala; 2. Shree Vajreshwari Mata Mandir, Kangra, Himachal Pradesh

GB Meeting

A 2nd meeting of the Governing body and Sub – committee of ARICARE was held at ICAR – IVRI , Belgachia , Kolkata on 21st December , 2019 and Seventeen(17) persons had attended in the meeting. The activities of ARICARE and performance of different sub-committees were discussed in the meeting. Some of the photographs of the meeting are depicted hereunder.



Annual Picnic

Annual Picnic was held on 18.01.2020 in the wetland area situated at Purba Kalikata Matsyajibi Samavai Samity Naskarhat, Kolkata . ARICARE members along with their families had participated in the Picnic enjoying the day in the gossiping and some activities such as Quiz, Throwing of Ball by Male members , Passing of ball by Women in musical chair followed by refreshment in the morning , prize distribution and lunch. The total participants in the Annual Picnic were 46.





Life Member

The following persons retired from ICAR , have become Life Member during the period from August , 2019 to January , 2020.

- Mr.Nitya Nand Bagchi ,ICAR – NINFET
- Dr.Sujit Kumar Ghosh , ICAR – NINFET
- Dr. Bijan Kumar Dutta , ICAR – IARI,Regional Centre , Karnal
- Dr. Gautam Bose , ICAR – NINFET

Achievement

1. Dr K.K. Satapathy , Former Director , ICAR – NINFET, presently President of ARICARE , has been inducted as a member of Quinquennial Review Team (QRT) , ICAR Research Complex for Eastern Region , Patna , Bihar.
2. Dr Samir Naskar , Former Director , ICAR-CTCRI , is presently member of Quinquennial Review Team (QRT) of AICRP on Tuber Crops under Central Tuber Crops Research Institute (CTCRI)
3. Dr Pratap Mukhopadhyay , Former Principal Scientist , ICAR – CIFA has been inducted in the State Team of Wetlands Authority as an expert member in the Fisheries discipline (the declaration of the Ministry of Environment has been published in the Kolkata Gazette dated January,3,2019.)

Indoor Medical Facility

The empanelled Hospitals/ Diagnostic Test Centres to have indoor Medical facility as approved for ICAR Pensioners and their dependents , are reported below . Retired ICAR Employees have already got Medical Identity Cards issued by ICAR Institutes at Kolkata.

ICAR – NINFET Empanelled Hospitals

- Disha Eye Hospitals Private Ltd , Kolkata
- Peerless Hospitex Hospital and Research Centre , Kolkata
- R.G. Stone Urology and Laparoscopy Hospital , Kolkata
- Sursut Eye Hospital and Research Centre , Kolkata
- Institute of Child Health , Kolkata
- BM Birla Heart Research Centre , Kolkata
- Desun Hospital and Heart Institute, Kolkata
- Naba Jiban Hospital Pvt. Ltd., Kolkata
- Medica Superspeciality Hospital , Kolkata
- Nihar Munshi Eye Foundation , Kolkata
- Nehru Memorial Techno Global Hospital, Barrackpur , West Bengal
- Suraksha Diagnostic Private Limited , Kolkata
- B. P. Poddar Hospital & Medical Research Ltd., Kolkata
- Apollo Gleneagles Hospitals , Kolkata

ICAR-CRIJAF Empanelled Hospitals

- Narayana Multispeciality Hospital , Barasat , West Bengal
- Amri Hospitals , Saltlake , Kolkata
- Peerless Hospitex Hospital and Research Centre , Kolkata
- Nehru Memorial Techno Global Hospital , Barrackpur , West Bengal
- Disha Eye Hospitals , Kolkata
- B. P. Podder Hospital and Medical Research , New Alipur , Kolkata
- Hayat Hospital , Guwahati
- Suraksha Diagnostic Private Limited , Saltlake , Kolkata
- Serum Analysis Centre , Kolkata
- R.B. Diagnostic Private Ltd , Kolkata
- Charnock Hospital, Kolkata
- Currae Eye Care , Kolkata
- B.M. Birla Heart Research Centre ,Kolkata
- Apollo Gleneagles Hospitals , Kolkata

- Gouri Devi Hospital and Research Institute, Durgapur , West Bengal
- Vivekananda Hospital, Durgapur, West Bengal
- IQ City Narayana Multispeciality Hospital, Durgapur , West Bengal
- Institute of Child Health,Kolkata
- Woodland Hospital, Shillong , Meghalaya
- ASG Eye Care (A unit of ASG hospital Pvt. Ltd.),Guwahati, Assam

Innovation in Agri and Allied Activities

A .Start Jute Bag Making Business

Dr. S. C. Saha ,Former Principal Scientist ,ICAR- NINFET

Jute Bag Making is a great opportunity for the person who wants to start a business with a small investment, it is the best option for housewife and students; any individual can start this business even from home. Jute fabrics are strong, durable, light, colorfast, attractive and cheaper than most fabrics made from other fibers. Additionally, these are anti-static and UV protective. Therefore, jute fabrics are excellent raw materials for jute bags. The jute bag making process is simple. Additionally, there are several different types of bags that are very popular in the market. Also, the business demands very small startup capital investment. Any individual can start this business even from home. Furthermore, this is a great opportunity for the women, housewives’.

Different Types of Jute Bag & Market Potential

There are numerous different types of jute bags you can find in the market. According to the lamination or lining, there are three different types of bags. These are:

- Un-laminated – Biodegradable, Laminated – Food Grade, Cotton Lined

Jute bag comes in a number of different handle options. These are :

Jute Handles ,Flat Cotton Strap,Cotton webbing, filled with rope,Cane Handles,Plastic ring,Rope with eyelets.

According to the use, there are several different types of jute bags. These are different in size, pattern, and color. These are :

- Jute Carry Bags ,Shopping Bag,Conference Bag,Ladies Purse,Designer Bag,Jute Conference Bags,Promotional Bag,Jute Wine Bottle Bags,Jute Cotton Bags

Decorated jute bags and shopping bags are very much in demand both for the domestic and international market. With the increase of population, the scope of trade and industry is also increasing. As the bags are an essential commodity for human, so the demand for the product is growing day by day. The demands of the product remain consistent throughout the year. So, it is presumed that there is a good scope for starting of such type of industry with a huge export potential.

Jute Bag Making Business Plan

Identify the Demand

This is the most important aspect you need to consider prior. You must identify the demand for the specific type of jute bag in the local market. Additionally, check the retail price, which are the manufacturers and their marketing policy. These all will help you in writing the business plan and starting your jute bag making business.

Craft a Business Plan

Even, if you start the business from home, then also you must craft a business plan. And your business plan must consist financial analysis of startup cost and marketing plan. Also, mention your business objective, target demographic and marketing strategy. As a jute bag manufacturer, you must offer the right product at the right price to the right audience.

Licenses Required for Jute Bag Business

This business doesn't demand lots of paperwork you need to deal with some documentation for jute making business.

1) Registration of Firm: You may start the small to medium scale jute bag processing unit either a proprietorship or partnership firm. If you are starting this business as One Person Company, then you have to register your firm as a proprietorship. For partnership operation, you have to register as a limited liability partnership (LLP) or Pvt. Ltd. Company with Registrar of Companies (ROC).

2) Tread License: Obtain Tread License from local authorities; you will need to have vat registration.

3) SSI unit: Also, register for SSI unit, apply for ISO certification.

4) GST registration: Obtain GST number by GST registration which is compulsory for every business owner.

5) IEC code: If you are planning for export your jute bag then you have to apply for IEC code.

Jute Bag Making Business Startup Cost

Generally, the startup cost consists of procuring machinery, raw materials and other resources including manpower. Additionally, you will need to have marketing and distribution costs. If you are starting a small-scale unit, then it is better to start with own fund. Otherwise, you can apply for a bank loan or venture capital investment.

Jute Bag Making Unit Setup

Generally, with 500 Sq Ft of an area, you can set up a small jute bag making business. However, you must have the electricity connection for operating the machinery. Additionally, space must have a wide entrance. After securing the space, you must craft a floor plan. Broadly, you will need to identify the space for the production area, storage, etc. You will need some space for office work.

Jute Bag Making Machinery

Generally, jute bag making business doesn't demand any heavy machinery. Simply, you will need to procure, Wooden Printing Table, The screen of Diff. Design, Rubber Wiper, Dye Paste Stirrer, Water Drum, Cottage Steamer, Tubes, Steel Spoons, Mugs, Bucket, Roper, Clips, Stools, Lock Stitch Machine, Wooden Working Table, Cutting Table, Electric Fittings, Scissors, Measuring tape, Fabric Cutting Machine, Lamination Machine, Heavy Duty Sewing Machine, Ordinary Sewing Machine, Stencil Equipment for Printing Coloring Paints, Lockstitch Machines, Woven Sack Bag Cutting Machine, Side Sealing Machine

Raw Materials

The major required raw materials for printed and decorated jute shopping bags are jute fabrics. Additionally, you will need to procure the dyestuff, printing gum, chemicals, and auxiliaries. Also, you will need to have PVC buckle and bamboo sticks, sewing thread, packing materials, label etc. You can procure the raw materials easily from the local wholesale market.

Manufacturing Process for Jute Bag Making

Step 1 Get Jute Roll

- First of all, you will need to procure the woven jute fabric from the wholesale market or manufacturers.

Step 2 Lamination of Jute

- There is two type of jute bag one is laminated jute bag and other is simple non-laminated jute bag.
- If you want to make laminated jute bag you need to laminate the entire jute roll or purchase laminated fabric before cutting.

Step 3 Cutting

- Use a cutting machine to cut the jute roll in required size.

Step 4 Printing

- Then you will need to print it by screen printing according to the design and color. Printing is immediately done after cutting. After that, wash the printed fabric and dry under sunlight or through drier.

Step 5 Washing and Drying

- Wash the printed jute roll and let it dry under sunlight for a few hours.

Step 6 Stitching

- You need a heavy sewing machine or lockstitch machine for stitching purpose, stitch the cut pieces of printed jute roll.

Step 7 Packaging

- After stitching of printed cut pieces the jute bag is ready for market use, you can attach bamboo or PVC buckles for carrying purpose.

Promote your Jute Bag Making Business – Entrepreneurship Development

Every business need promotion to sell the product, designer bags rarely required promotion. Generally, the retail distribution is the most proven way of establishing any product in the market. However, you must consider the institutional sales also. Apart from the offline promotion, concentrate on the online too. According to the brand name of your company, secure a domain name and build a business website. Also, use the social media carefully for promoting your jute bag widely.

Online Selling of Jute Bags

Apart from the old way of promotion you can choose new concentrated online marketing strategy. Open your own website to aware people and get connected to customers. Sell your product online using your website or another hosting site that helps to promote your brand. Register your business on the following sites and you can sell your product on bulk orders.

- Alibaba
- India mart
- Trade India
- Exporters India

Register your business on the following sites and you can sell your product directly to the customer.

- Amazon
- Flipkart
- Snapdeal
- Bigbasket

Name & Address of Raw Materials Suppliers:

1. M/s Chapdani Show Room 25, Princep Street, Kolkata-700 001.
2. M/s Jutex India, 11, Shambhu Chatterjee Street (Near Grace Cinema Hall), Kolkata-700 007 .
3. M/s Deepa Meheta, Bara Bazaar, Kolkata-700 007.
4. All Jute Materials are available at Bara Bazaar, Khangra Patty, Kolkata-700 007.

Jute Bag – An Entrepreneurial Activity



B. Paddy, Poverty and Climate Change –In Perspectives of West Bengal

Dr. M S Basu Former Director, ICAR-DGR

West Bengal is passing through a very difficult situation in agricultural front. The State has dubious distinction of cultivating Paddy in 55 lakh hectares with a production of 158 lakh tons, a high-volume low-cost commodity often leading to distress sale, seemingly Paddy and Poverty goes together!

The adversities of climate change are in place and cultivation of paddy is in jeopardy during the current Kharif season (2019), more particularly in Southern West Bengal due to inordinate delay in arrival of rains.

Farmers had no option but to transplant over-matured seedlings, mostly of long duration varieties in the month of August, bound to reduce yields substantially. The situation demands a range of strategic planning and inputs-oriented interventions to rescue farmers slipped into deep distress.

A. Strategy to supply seeds of climate resilient crop varieties for the ensuing Post-Rainy season.

1. Rabi Pulses (Lentil, Moong, Urd, Field Pea, Chickpea); Oilseeds (Sesame, Mustard, Groundnut, Sunflower, Linseed).
2. Hybrid Paddy and HY medium duration varieties recommended for the state.

B. Cutdown paddy area and introduce less water required crops, as policy:

1. Wheat may be introduced in the areas of relevance.
2. Cultivation of high-quality protein maize hybrids in large areas
3. Introduction of quinoa, a nutrient rich coarse cereal for food fortification.

C. Plan to utilize more Bio fertilizers and Bio pesticides reducing cost of cultivation and improving soil health.

1. Organic manure-Bio-enriched
2. Liquid NPK, Micro-nutrients
3. Bio-pesticides, Bio-control Agents

Supply Plan:

- a) Procurement of quality seeds of recommended varieties in target crops/varieties in cereals, pulses and oilseeds.

Cereals:

- a) Paddy: KRH-2, KRH-4, Rajalakshmi, Arize-4786 CR, etc. (Hybrid)
Shatabdi, MTU-1010, Annada, Gotra Bidhan, etc. (OP)
- b) Maize (Hybrid): HQPM-1, HQPM-5, etc.
- c) Wheat: HD-2888, NW-1014, HI-1563, DBW-14, etc.

Pulses:

- a) Moong (Green Gram): Hum-16, PDM-139, IPM2-3, etc.
- b) Urd (Black Gram): Pant U-31, KU 92-1, WBU-109, etc.
- c) Lentil: HUL-57, WBL-77, etc.
- d) Field Pea: HUDP-15, VL 42, etc.
- e) Chickpea: Anuradha, Mahamaya-1.

Oilseeds:

- a) Groundnut: TAG-24, TG-37 A, TG-38 B, Girnar-3, Devi, etc.
- b) Mustard: Pusa Mustard -25, 27, JD-6, YSH-0401, etc.
- c) Sunflower: KBSH-1, DRSB-1, etc.
- d) Linseed: Ruchi, Parvati, Shekar, Garima, Subhra, etc.
- e) Sesame: Rama, Sabitri, etc.

The area wise seed requirements may be worked out, which can be made available on two months' notice in advance. Similarly consolidated requirements for Rabi-Summer season may be worked out, which can be supplied in one month's advance notice.

C. Digital Crop Management Strategy for Horticulture in West Bengal

Dr. M S Basu Former Director, ICAR-DGR

The state of West Bengal is a net producer of many fruits and vegetables. While vegetables can be grown at commercial scales in open fields to glasshouse/playhouse to more restricted spaces like kitchen gardens and roof tops (mostly suited for personal consumption), their cultivation can be better shielded from the adversities of a changing climate when compared to fruit/orchard crops.

The major fruits grown in India (in terms of area under cultivation in descending order) are mango, citrus fruits (mandarin, lime/lemon, orange, others), banana, apple, guava, pomegranate, jackfruit, papaya, grapes, pineapple, sapota and watermelon among others. While West Bengal is the largest producer of pineapples, it is the 4th largest producer of guava, 6th largest producer of sapota, 8th largest

producer of mango and papaya, and 10th largest producer of banana among all Indian States. Situated in the Eastern Himalayan and Lower Gangetic Plain Regions, the soils of West Bengal are acidic to neutral in pH (from pH 3.5 to 7.5) ranging in texture from brown forest soils to sandy/sandy loams to neutral to heavy clay, with rainfall from 1100mm – 3500mm. While soils in Birbhum, Bankura, and Paschim Midnapur are coarse in texture and erosion prone, the soils in Purulia are gravelly, coarse textured, with low water holding capacity. Coastal salinity is a problem in West Bengal. Substantial areas in the eastern region are also categorized as water congested or waterlogged where water remains stagnated for longer durations. Various edaphological, climatological, biotic and technological constraints characterize the various agroclimatic zones of West Bengal, which have seen aggravation due to climate change, thereby posing serious challenges to production (through escalation of input costs, lowering of quality & uncertain output, erosion of farm incomes) of fruits and vegetables in West Bengal.

SBSF Consultancy understands the inherent problems that reside within each and every agricultural production system and has a successful track record of mitigating them. We do so by leveraging a rich network of experts spread across the world in the field of crop sciences, data science, machine learning, artificial intelligence, regulatory affairs, food safety, and business strategy. We assist companies, not-for-profit organizations, governments and international bodies in areas related to agricultural production, business and market development across production systems and crops. Going beyond traditional consulting, by applying data science, we have supported project development based on machine-learning and data engineering applied to the agricultural sector (Digital Farming and Precision Agriculture).

SBSF Consultancy can bring about the enhancement of productivity of existing fields and orchards by promoting technological solutions in project mode. AI (Artificial Intelligence) is steadily emerging as part of the agriculture industry's technological evolution. By leveraging computer vision and deep-learning algorithms to process data captured by satellites/drones and or software-based technology (databases) we can assist in monitoring crop and soil health while making active and

timely recommendations for better outcomes. Machine learning models can also be developed and deployed (on a project basis) to track and predict various environmental impacts on crop yield: a predictive rather than reactive approach to crop management!

D. Simple Innovations by Small Fish Farmers in West Bengal

Dr. P. Mukhopadhyay , Former Principal Scientist , ICAR – CIFA

Use of simple tools and implements accompanied by continuous farmers' creative ideas in fish husbandry process and the skill of problem solving proved to be quite useful and stood the test of time. Some of the areas wherein farmers' innovative ideas proved to be beneficial in aquaculture include

- i) Keeping the pond clean of aquatic macrophytes using straw made rope and not resorting to chemical application,
- ii) Fabrication and installation of bamboo cages in ponds for diversification of fish culture including small local fish species and using split bamboo pole stuffed with organic manure for raising plankton.
- iii) Control of predator birds without virtually any additional expense and not harming the birds including the migratory ones.
- iv) Providing aeration facility to enhance the dissolved oxygen content in pond water.
- v) Simple methods of fish feed preparations and application in culture ponds-for example using perforated bags tied with bamboo poles in the pond ,feeding the fishes grazing in the various zones of the culture pond- surface, column and bottom feeding fish and simple enclosure for feeding with floating /flake-type feed to the fishes .
- vi) Breeding , seed production and transport under oxygen packing in captivity without any hatchery infrastructure .
- vii) Creating a shade on the pond with the help of palm leaves during summer months when heat becomes unbearable .

- viii) Measurement of water quality parameter -like turbidity using fabricated secchi disc .
- ix) Application at fortnightly intervals of medicated feed containing herbal extracts like combination of neem leaf , turmeric, basil leaves,garlic extracted together and mixed with pinch of common salt to prevent disease infestations
- x) Periodic removal of generated gases from the pond bottom using rakers followed by lime application in ponds to maintain water quality paremeters within recommended levels to mention a few.

While there is no denying that application of scientific principles is important in the scaling up of the production performance of cultured fishes, ingenuity of farmers' innovations and improvements successfully tested over time should not be overlooked and given due recognition with scientific base lest such devices and contraptions get lost forever.

Healthy Habits

Some of healthy habits are illustrated below.

- Eat healthy, Balanced diet
- Three things reduced to minimum (Salt/Sugar / Carbohydrates / Cooking oil)
- Four acts to stay healthy (Laughing / Exercise /Weight loss)
- Four things to increase consumption (Greens / Veggies/Fruits/Nuts)
- Focus on administration of suitable Vaccine
- Focus on prevention and regular medical checkup.
- Seek Doctors' advice on the Side Effect of any Medicine.
- Two things to examine often (Blood pressure / Blood Sugar)
- Get information on medication management (Med claim and expenses permissibility etc.)

- .Get some sleep and rest.
- Four things not to wait for
 1. Don't wait till you are sleepy to sleep
 2. Don't wait till you are tired to rest.
 3. Don't wait till your friend is sick to go to see him
- Remember mental health.
- Regular Screen for vision changes.
- Regularly Socialize with friends and relatives.
- Three things to have (True friends /Loving family/Positive thoughts)
- Stay physically active.
- Visit the dentist every six months.
- Three things to forget (Your Age/ Your Past/ Any Grudges)

Take Care of Yourself and Stay Healthy in Cheerful mind.

(Source : <https://www.aplaceformom.com/blog/11-5-14-healthy-habits-for-seniors>)

Tips on How one can control Diabetes

Diabetes is India's fastest growing disease and 72 million cases recorded in 2017 , are expected to become double by 2025.

- Eat food at fixed hours. Do not overeat.
- Do not eat immediately after a workout.
- If you are on insulin, make sure you have three proper meals with light snacks in between.
- Do not eat fast; masticate and munch your food well before you swallow.
- Drink a lot of water that will help flush the toxins off your system.
- Make sure the gaps between your meals are short. Avoid fried foods , Cold

Drinks , Alcohol , Red meat and Sweets.

- Include fresh vegetable salad in every meal.
- Do at least 1 hour exercise daily, Body mass index (BMI) to remain between 18.5 to 24.9.
- Add wheat bran to your wheat flour (50% wheat flour + 50% wheat bran). This helps to increase fibre in your diet.

(Source : <http://rishikajain.com/2013/05/22/10-tips>)

Purification for life!!!!

- Body gets purified... by Water and Exercise.
- Breath gets purified... by Praanaayam.
- Mind gets purified... by Meditation.
- Intellect gets purified... by Knowledge.
- Memory gets purified... by Manan and Chintan.
- Ego gets purified... by Seva (service)
- Self gets purified... by Silence (maun)
- Food gets purified...by Positive Thoughts while cooking and eating
- Wealth gets purified --- by Giving and Donating
- Feelings get purified ---- by Love and Surrender

(Source : <https://www.speakingtree.in/blog/10-types-of-shuudhis-purification>)

News / Technology Summary

Kharif crops - 2019-20

The Agriculture Ministry has released the First Advance Estimates of production of major Kharif crops for 2019-20. The production of most of the crops for the agricultural year 2019-20 has been estimated higher than their normal production due to higher cumulative rainfall during the monsoon season up to mid-September. Rainfall up to mid-September has been 4 percent higher than Long Period Average (LPA).The total Kharif foodgrain production in the country is estimated at 140.57million tonnes. Total production of kharif rice during 2019-20 is estimated at 100.35 million tonnes, which is 6.80 million tonnes higher than the five years' average production of 93.55 million tonnes.

Total kharif pulses production during 2019-20 is estimated at 8.23 million tonnes, one million tonne higher than the five years' average production of 7.23 million tonnes. The production of kharif oils seeds during 2019-20 is estimated at 22.39 million tones. Total output of sugarcane in the country during 2019-20 is estimated at 377.77 million tonnes. The production of cotton estimated at 32.27 million bales (of 170 kg each) is higher by 3.56 million bales over 28.71 million bales during 2018-19. Production of jute and mesta estimated at 9.96 million bales (of 180 kg each) is higher than the production during 2018-19.

(Source : <https://www.zeebiz.com/india/news-kharif-crops>)

Export of Cereal Crops

India is the world's second largest producer of Rice, Wheat and other cereals. The huge demand for cereals in the global market is creating an excellent environment for the export of Indian cereal products. India's export of cereals stood at Rs. 56.8 thousand crore during the year 2018-19. Rice (including Basmati and Non Basmati) occupy the major share in India's total cereals export with 95.7% during the same period. Whereas, other cereals including wheat represent only 4.3 % share in total cereals exported from India during this period.

(Source :// http://apeda.gov.in/apedawebsite/six_head_product/cereal.htm)

Development of High Protein Rice Variety

The ICAR-National Rice Research Institute, Cuttack has developed a high protein rice variety CR Dhan 310 with an average 10.3% protein in milled rice, by improving the popular high yielding variety Naveen. It is now released by the Central Variety Release Committee. Rice is one of the most important staple foods, particularly for the Asians, but it is generally low in grain protein content (6-8%), which is the lowest among cereals.. The average grain yield of this variety at national level in the multi-locational testing was 4483 kg/ha, where in it outperformed the yield-check, Samba Mahsuri by registering yield superiority of 6.81%. It has long panicle with medium slender grains. This variety of rice also contains moderate level of Zn (15 ppm) in milled rice. Hence, protein malnutrition in poor population for whom rice is staple food is a serious nutritional problem. As this is not only a high yielding variety, but protein rich too, it would prove to be a good source of nutrition for the people who mainly depend on rice for their nourishment.

(Source : ICAR – National Rice Research Institute , Cuttack)

RiceXpert

'Ricexpert' App provides information to farmers in real time on insect pests, nutrients, weeds, nematodes and disease-related problems, rice varieties for different ecologies, farm implements for different field and post harvest operations. It is a web-based application systems which facilitates flow of information from the farmer to the farm scientist and get their instant solution. Farmers can use this App as a diagnostic tool in their rice fields and make customize queries for quick solution of their problems by sending text, photo and recorded voice and solution received through SMS.

(*Source : ICAR – National Rice Research Institute , Cuttack*)

Golden Rice

Golden Rice is a new type of rice that contains beta-carotene, which the human body converts to vitamin A as needed. IRRI and its partners, Philippine Rice Research Institute (PhilRice) and Bangladesh Rice Research Institute (BRRI), are developing popular local inbred rice varieties with the beta-carotene producing Golden Rice trait, which have yields, pest resistance, and eating qualities that are comparable to the original varieties. The creation of Golden Rice was a major breakthrough in biofortification. Together with its partners, IRRI continues to develop Golden Rice through the breeding of Asian rice varieties, field testing, assessing for safety and efficacy, and developing sustainable delivery programs. After rigorous biosafety assessment, Golden Rice "has been found to be as safe as conventional rice" by the Philippine Department of Agriculture-Bureau of Plant Industry.

(*Source : International Rice Research Institute , Manilla , Phillippines*)

Fruits and Vegetables

India's diverse climate ensures availability of all varieties of fresh fruits & vegetables. It ranks second in fruits and vegetables production in the world, after China. India is the largest producer of ginger and okra amongst vegetables and ranks second in production of potatoes, onions, cauliflowers, brinjal, Cabbages, etc. Amongst fruits, the country ranks first in production of Bananas (25.7%), Papayas (43.6%) and Mangoes (including mangos teens and guavas) (40.4%). The vast production base offers India tremendous opportunities for export. During 2018-19, India exported fruits and vegetables worth Rs. 10.2 thousand crores which comprised of fruits worth Rs. 4.8 thousand crores and vegetables worth Rs. 5.419.48 crores.

Though India's share in the global market is still nearly 1% only, there is increasing acceptance of horticulture produce from the country.

(Source : http://apeda.gov.in/apedawebsite/six_head_product/FFV.htm)

Organic Products

Organic products are grown under a system of agriculture without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach. This is a method of farming that works at grass root level preserving the reproductive and regenerative capacity of the soil, good plant nutrition, and sound soil management, produces nutritious food rich in vitality which has resistance to diseases. Total area under organic certification process (registered under National Programme for Organic Production) is **3.56 million Hectare** . This includes 1.78 million ha (50%) cultivable area and another 1.78 million Hectare (50%) for wild harvest collection. India produced around **1.70 million MT** of certified organic products which includes all varieties of food products namely Oil Seeds, Sugar cane, Cereals & Millets, Cotton, Pulses, Medicinal Plants, Tea, Fruits, Spices, Dry Fruits, Vegetables, Coffee etc. The production is not limited to the edible sector but also produces organic cotton fiber, functional food products etc. During 2016, Sikkim has achieved a remarkable distinction of converting its entire cultivable land (more than 76000 ha) under organic certification.

(Source : http://apeda.gov.in/apedawebsite/organic/Organic_Products.htm)

Animal Husbandry Sector in West Bengal

One of the pillars of State's Rural Economy is Animal Husbandry. It contributes 3.89% of State Domestic Product (SDP) and nearly 20.34 % of Agricultural Production. The state is rich in 16.5 million cattle which is 3rd in India , 11.51 million goat population which is 4th in India and 52.84 million population Poultry population being 5th in India .The State produces 4.90 million tones of milk, 650 thousand MT of meat and 4746 million number of egg annually . In National terms , the State is ranked third in egg production and meat production, eleventh in milk production. There is a demand – supply gap being the shortfall of 1.26 million tones of milk ,4644 million numbers of egg and 378 thousand tones of milk.

(Source : <https://wbard.gov.in/files/PDF/EXPLORE%20BENGAL>)

Water Harvesting Technology

Water is most crucial resource for sustainable agricultural production in the dry land/rain fed areas. However the major part of the rain water coming over the farmers' field in these areas as well as in hilly/slopy terrains goes away unused as runoff. The runoff does not only cause loss of water but it also washes away precious top soil. Location specific water harvesting technologies in the form of *Farm Ponds* to address this problem are the need of the hour. The farm ponds are constructed at the lower side of the fields. The runoff from the contributing fields is chenalized into the pond. In light soil, the dugout ponds are lined to improve the storage efficiency by containing the seepage. Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad has been promoting *Farm Pond* Technology in the rainfed areas in the country as a drought proofing measure. Such ponds can be used to develop fisheries and supply irrigation to grow field crops/vegetables thus bringing the farmers out of poverty.

(Source: Central Research Institute for Dryland Agriculture Santoshnagar, Hyderabad)

Agro Processing Centre

The concept of Agro-Processing Centre (APC) is to process the grains at village level to substantially enhance the income of the farmers. These complexes consist of two or more machines for processing at farm/village level. The machines are mini rice mill, baby oil expeller, small atta chakkies and large atta chakkies with scouring machine, masala grinder, penja, cleaner and feed mill along with construction and installation costing approximate Rs. 25-30 lakhs. Establishment of Agro-Processing Centre (APC) at the farm gate will help in getting quality products, reducing post-harvest losses, employment to rural youth and achieving diversification concept in agriculture besides improving the economic and social status of farmers.

(Source: All India Coordinated Research Project on Post-harvest Engineering & Technology, PAU Centre Ludhiana)

Banana Flour Based Products

India is the largest producer of banana in the world, contributing 25 per cent to the global production. During the market glut, the excess production of banana can be converted into value added byproduct flour that would form raw material for other value added products like Banana Baby food, Health drink and Soup mix which could fetch a premium price in the market. Moreover, male bud, a waste material can also be utilized as an ingredient in soup making, and it also has medicinal values.

Banana flour prepared from matured fruits is fortified with milk, green gram and sugar for baby food preparation, while in health drink preparation, chocolate powder, barley powders and sugar are added with banana flour. Soup mix involves mixing of banana flour, corn flour, dried vegetable and spices in various proportions. The Baby food is suitable for growing children and the Health drink and Soup mix is for all age groups. The products can be stored up to six months.

(Source – ICAR – National Research Centre for Banana , Tiruchirapalli , Tamil Nadu)

Aquaculture in East Kolkata Wetlands

The East Kolkata Wetlands (mentioned as EKW), located on the eastern fringes of Kolkata city is spread over an area of approximately 12,000 ha covering two districts- North 24 Parganas & South 24 Parganas in West Bengal. Approximately 45% of the total area is water body and 40% of it is farmland, the remaining area has urban/ peri-urban settlements and part used for garbage disposal arrangements. The EKW has been recognized as Wetland of International Importance under **Ramsar** Convention in 2002. Farmers around the city has developed a technique of recycling raw domestic sewage through sewage-fed fish culture ponds. The sewage is let into the

ponds to a depth of 90 cm along with tidal water in a ratio of 1:4, sewage to water. The water is allowed to settle for 15-20 days after which it becomes clear and odourless. The amount of sewage loading in fish ponds thus serving dual purpose of waste recycling and utilization of nutritional value to enhance fish production , is the hallmark of aquaculture production in EKW environment. The preservation of wastewater under the abundant sunlight allows microorganisms present in it to decompose the organic matter with occasional provision of aeration in pond water followed by(but not always) biological treatment using duckweeds , desilting , lime application and bottom raking . EKW thus serves as a sustainable resource recovery system which hosts more than 300 fish farm ponds of approximately 40 ha each favouring the growth of mainly Indian major carps .(Source : Dr. Pratap Mukhopadhyay (2020) , *Aquaculture through a Novel Resource Recovery System in East Kolkata Wetlands* , www.Krishijagaran.com , pp 70-75)

Age is an issue of mind over matter, if you do not mind , it does not matter – MARK TWAIN.
