Horticulture

1. Name of the technology : Gladiolus variety *Arka Ranjini*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: It is having attractive floret colour i.e., Purple (78.A) middle, Red – Purple (72.A) margin with Green-Yellow (1.D) blotch, florets arranged in double rows, short spikes and early flowering (62-68 days). This is suitable for cut flower and bedding purpose and the marketable spikes per corm were 1.82.

2. Name of the technology: Gladiolus variety *Arka Pratham*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: It is having attractive violet floret colour i.e., Purple Violet (82.A) having Purple (77.A) margin and Green White (157.C) line on lower lip, upright spikes and early flowering (58-65 days). This is suitable for cut flower and bedding purpose and the marketable spikes per corm were 1.59.

3. Name of the technology: Gerbera variety *Arka White*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: Gerbera variety, Semi double flower with white colour and green disc. Average Stalk length more than 60 cm. Average Flower diameter more than 10 cm. Average number of flower are more than2.7 flower/plant/ month. Average vase life is more than 7.0 days.

4. **Name of the technology**: Gerbera variety *Arka Pink*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: Double flower with pink colour and black disc. Average Stalk length more than 62 cm. Average Flower diameter more than 11 cm. Average number of flower are more than 2.8 flower/plant/month. Average vase life is more than 7.2 days

5. **Name of the technology**: Marigold variety *Arka Pari*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: French marigold photo insensitive variety with dwarf plant habit with spreading habit and floriferous nature. Flowers are orange in colour. Colour changes into different shades of orange depending upon light, temperature and stage of flower (RHS colour chart -Orange Group N-25B in the beginning changes N-25 C and N-25 D). Flowering is observed throughout the year. Flower initiation starts 30 days after planting with a flowering duration of 9 weeks. Duration of crop: 3 months. Flower size: 4.3 cm. Number of flowers: 500-600/plant. Flower yield/acre: 4.7tons/acre.

6. **Name of the technology**: Marigold variety *Arka Honey*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: French marigold photo insensitive variety with double coloured flower. Border is orange (RHS colour chart Orange group N-25C) and center is dark red (RHS colour chart red group 44-A). Plants are dwarf with spreading habit and floriferous. Flowering is observed throughout the year. Days to flower initiation: 30-35 days after planting with a flowering duration of 6 weeks. Duration of crop: 3 months Flower size: 4.8 cm. Flower yield/acre: 5.8 tons/

7. **Name of the technology**: Gerbera variety *Arka Red*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the variety: The flowers are bright red in colour. Double in nature. It is best suitable for growing outside. It is suitable for both beds and cut flower. It yields 360 flower per sq meter per year. It can be planted anytime.

8. **Name of the Crop**: Marigold variety Hybrids: *Arka Shubha (MOH 1-2)*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the variety: Arka Shubha' is a F1 hybrid of African Marigold identified for its carotenoid content. Plants are spreading type with an yield potential is 12-14 tons/ acre. Flowers are orange in colour (RHS colourOrange group N25 C) with shelf life of 5-6 days. Arka Shubha is rich with 3.25% (g/100g dry wt) carotenoid content.

9. **Name of the technology**: Marigold variety Hybrids: *Arka Abhi (MYH 2-1)*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the variety: ArkaAbhi is F1 hybrid of African Marigoldidentified for its attractive radiant lemon yellow colour. Flowers are large in size (7-8cm) with radiant bright lemonyellowcolour (RHS Yellow group 5 A). It is high yielding F1 hybrid with 10-11tons/acre with flowers having good shelf life (6-8 days).

10. **Name of the technology**: Arka Shubhi: China Aster Variety

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2021

Description of the variety: Unique light pink flower colour (Red Purple group, 65D, Fan 2). Average flower diameter: 5.04 cm. Average number of flowers per plant: 56. Average stalk length: 47 cm. Average vase life: 10 days. Suitability: Cut flower, flower arrangement.

11. **Name of the technology**: Arka Nirali: China Aster Variety

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2021

Description of the variety: Unique mutant with semi-double flower having short pseudo ray florets. Flowers are violet in colour (N81A, Purple group, Fan 2). Average number of flowers per plant: 43. Average stalk length: 42 cm. Average vase life: 11 days. Suitability: Cut flower, flower arrangement and bouquet making.

12. **Name of the technology**: Arka Keerthi: Tuberose Variety

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2021

Description of the variety: It produces single type flowers on tall spikes, the flower buds are with green tinge on the tip with more number of flower buds per unit (kg), flowers are medium in size with the matured bud weight of 1.29 g. It produces more number of spikes (8.40) and bulbs (8.94) per clump per year. It has high loose flower yield (18.88t/ha/year) field tolerant to nematode and leaf burn disease.

13. **Name of the technology**: Chrysanthemum variety *Arka Anirudh*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2022

Description of the variety: Dwarf plants, semi-erect growth habit, early flowering (62.77 days). Suitable for pot culture. Semi-double flowers, maroon-yellow colour (RHS colour: 17A, Yellow 7 Orange Group, Fan 1). 5 to 6 rows of ray florets. Resistant to White rust disease.

14. **Name of the technology**: Chrysanthemum variety *Arka Dhaval*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2022

Description of the variety: Dwarf plants, spreading growth habit, early flowering (69.17 days), Suitable for pot culture, Semi-double flowers, pinkish white colour (RHS colour: 3D, Yellow Group, Fan 1), 3 to 4 rows of ray florets.

15. **Name of the technology**: Chrysanthemum variety *Arka Manohar*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2022

Description of the variety: Plants dwarf with erect growth habit, early flowering (66.52 days), Suitable for bedding, Semi-double flowers, deep pinkish purple (RHS colour: 71 B, Red-Purple Group, Fan 2), 5 to 6 rows of ray florets.

16. **Name of the technology**: Arka Bhringaraj

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2023

Description of the Crop: The plants are vigorous with erect branching pattern which facilitates easy harvesting. It is easily propagated by both seeds and cuttings. High biomass yield (6 to 6.5 t/ha) with high wedelolactone content (0.5 to 0.6%) compared to local check IIHREA 4 (2 to 2.5t/ha & 0.10 to 0.2% wedelolactone content). Profuse flowering and high seed yield of 100 to 125kg/ha compared to check (IIHREA 4) which has sparse flowering habit with a seed yield of 50-70 kg/ha. Field tolerance (< 10% PDI) to downy mildew (Plasmoparas phagneticolae).

17. **Name of the technology**: Mango variety *Arka Suprabhath*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the variety: It is a medium vigorous, regular and bunch bearing, high yielding (35-40 kg / plant after 4 years of planting) hybrid. The fruit weight ranges from 250-300g, the fruit shape resembles like Alphonso. The pulp resembles Amrapali and is deep orange in colour and firm. Pulp recovery is >70%, TSS (>22°B), acidity (0.12%), carotenoids (6 mg/100g FW) and flavonoids (3.44 mg/100g FW). It has a shelf life of 8-10 days at room temperature.

18. **Name of the technology**: Pummelo variety *Arka Chandra*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the variety: Semi vigorous trees with spreading branches. Leaf lamina shape is ovate, crenate leaf margin and shoot tip surface is pubescent. Medium sized fruits (0.8-1kg), ellipsoid fruit shape, Shape of the fruit base is truncate and fruit skin colour is yellow.

19. **Name of the technology**: Pummelo variety *Arka Anantha*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the variety: Semi vigorous trees with drooping branches. Leaf lamina margin is entire, crenate leaf margin and shoot tip surface is pubescent. Medium sized fruits (1.0-1.2 kg), oblique fruit shape, Shape of the fruit base is concave and Shape of the fruit apex is depressed.

20. **Name of the Crop**: Rose apple variety *Arka Neelachal Akshay*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2022

Description of the variety: Seedling selection developed at CHES, Bhubaneswar. Early variety (March- April). Fruits are attractive yellow in colour, round in shape, medium to big (28-34g) in size. The pulp is firm, with high recovery (75 to 80%) and good TSS (14-16 o B). The yield potential is good and are having less incidence of fruit fly.

21. **Name of the Crop**: Avocado variety *Arka coorg Ravi*

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2023

Description of the variety: Fruit weight ranged from 450-600 g. Pulp recovery is > 80%. Flowering behavior B type. Regular and high yielding. Fat content is 12% to 14%. Peel thickness is 1.5 mm. Pulp thickness > 2.5 cm. Moderately tolerant to scab.

22. **Name of Technology:** Solar Power Integrated Outdoor Mushroom Growing Unit

Source of Technology: ICAR-IIHR, Bengaluru

Year of release: 2019

Agro climatic Zones: All agro climatic zones

Brief Description of Technology

Fig: Solar Power Integrated Outdoor Mushroom Growing Unit

The overall dimension of the growing chamber is 1.35 x 0.93 x 1.69 m which is made up of 1" CPVC pipes and fittings. It is covered with nylon 40 mesh to protect the entry of insects and to facilitate the aeration. It is further covered with locally available gunny bag all around and it is wetted to maintain humidity inside the chamber. A 30 W DC misting diaphragm pump with 10 nozzles of 0.1 mm size to produce more than 100 bar pressure to get very fine misting inside the chamber. It can be operated either by electric power or using solar power system with 300 W panel, inverter, 12V storage battery and a timer. The entire growing chamber is fitted inside a mild steel frame of 1.08 x 1.48 x 1.8 (side height) x 2.2 (centre height) with mobile wheels for easy mobility and transport. The solar panels are mounted on the roof top of the frame and inverter and battery are mounted and supported in the frame. A 30 litre water tank is fitted at the bottom side of the frame along with the misting pump.

The module was evaluated by growing two varieties of oyster varieties viz., 20 bags (1 kg) of Elm oyster and White oyster mushroom were evaluated both at cropping room and outside chamber every month from 2016 to 2018. The average yield recorded during 2016 to 2018 shows that there is an average increase of 108 % in Elm oyster yield in mobile chamber in comparison to the cropping room yield. Similarly, an increase of 51% mushroom yield was recorded in white mushroom yield. The average monthly mushroom yield from this structure is 25-28 kg.

23. **Name of the Technology**: Arka Mushroom chutney powders

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

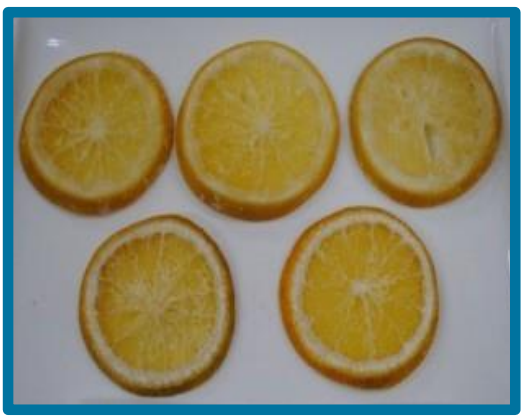
Description of the Technology: The Arka Mushroom chutney powder technology relates to the usage of dry oyster mushroom for the production of mushroom chutney powder or chutenypodi which can be used for the nutrition enhancement of daily household diet both at rural and urban levels. Although mushrooms are very well known for their culinary medicinal properties, their consumption has been limited due to short shelf life, irregular availability and high cost. The seven variants of Arka mushroom chutney powder combines the traditional taste and nutritive goodness of mushrooms with traditional healing herbs like Brahmi, Moringa leaves and traditional nutritive seeds like flax seeds, sesame seeds, ground nut and coconut. It is a novel product to be consumed daily as a daily food accompaniment with any traditional Indian food. It is a ready to eat powder and can be easily adopted in mid day meals and defense food. It has a shelf life of 3 months in airtight containers/pouches at ambient temperature (26-28°C) which can be extended at lower temperature. It can be taken up as entrepreneurship by women SHGs, war widows, disabled soldiers and other rehabilitation programs. Hence this technology will be of immense importance to enhance nutrition if adopted under nutrition programs and also help in income enhancement of rural women, war widows, and disabled people.

24. **Name of the Technology**: Osmotically dehydrated candy from Mandarins and Oranges

Source of the technology: ICAR-CCRI, Nagpur, Mahaarashtra

Year of the technology: 2021

Description of the Technology: Mandarins and oranges are quite popular citrus fruit crop which have attractive color, good taste and flavor. The mandarin fruit can be used as table fruit, incorporated into deserts or made into value added products. On the other hand, oranges are mostly used in processing and for development of value added products. People are becoming more health conscious and favoring easily accessible diet source. And to grow food business and to make consumers satisfy, food business operator are eager to develop healthier portfolio of Candy. These citrus sp. are rich source of vitamin-c, soluble fiber, beta-carotene, antioxidants, and minerals such as potassium and manganese. The technology of candy from mandarins and oranges are prepared through osmotic dehydration process. It is a novel product dried at room temperature, vacuum packed and stored and has a much demand among children. They have a shelf life of 6 months in vacuum packed at room temperature (26-28°C). The candy from Nagpur mandarin (*Citrus reticulata* Blanco) and Sweet Orange (*Citrus sinensis* L. Osbeck) peel provides 100% utilisation of the fruit and also a processed product having entrepreneurship potentiality. It can be taken up as entrepreneurship by small and medium processing units, FMCG companies, FPOs, women SHGs, etc. for generating a secondary source of income.



25. **Name of the Technology**: Manufacturing of Ice-Cream using Mandarin Orange

Source of the technology: ICAR-CCRI, Nagpur, Mahaarashtra

Year of the technology: 2021

Description of the Technology: Mandarins are locally available and its juice is quite famous throughout the continent. People are becoming more health conscious and favoring easily accessible diet source. Mandarins help in maintain cholesterol levels, maintaining healthy skin and helps body to heal wounds. Ice cream is having so much demand in summer in India and has high demand globally especially in developed country. Nagpur mandarins are quite popular citrus fruit which have attractive color, good taste and flavor besides being rich source of vitamin-C, soluble fiber, beta-carotene, antioxidants, and other bioactive compounds. It is a novel product prepared from Nagpur mandarin juice in addition to milk, cream, skimmed milk powder (SMP), sugar, glyceryl mono stearate (GMS), carboxymethyl cellulose (CMC), flavor and essence through continuous agitation process. The product was stored in refrigerator (4°C) and has a shelf life of 3 months. The developed technology can be taken up as entrepreneurship by small and medium processing units, FMCG companies, FPOs, women SHGs, etc. for generating a source of income.

26. **Name of the Technology**: Nutri Jelly from Limes

Source of the technology: IICAR-CCRI, Nagpur, Mahaarashtra

Year of the technology: 2022

Description of the Technology: The technology of Nutri Jelly relates to the usage of limes for the production of jelly which can be used for the nutrition enhancement of daily household diet both at rural and urban levels. Lime is one of the commercially grown citrus crop and well known for its medicinal properties. Lime flowering and fruiting take place throughout the year and hence it is available as a source of income year-round for the farming community.

The developed technology i.e. Nutri-jelly from limes is in accordance with the FSSAI standards and is having sharp texture and it is so tender that it may be cut easily with the spoon. It is a novel product to be consumed daily as a daily food accompaniment with any traditional Indian food. It has a shelf life of 6 months in airtight containers/pouches at room temperature (26-28°C). The developed technology has been commercialized. It can be taken up as entrepreneurship by women SHGs, war widows, disabled soldiers and other rehabilitation programs. Hence this technology will be of immense importance to enhance nutrition if adopted under nutrition programs and also help in income enhancement of rural women, war widows, and disabled people.

27. **Name of the Technology**: Arka vertical garden structure

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the Technology The vertical garden structure is useful for safe growing of the selected vegetable requirement of a family and can be accommodated in sunlit utility area, balcony and terrace. This structure can also be used by anyone who desires to grow vegetables, medicinal and flower crops using vertical space. The vertical garden structure has three major sub structure viz., i) base frame, ii) main central support and iii) supports for pots/grow bags. Pots suitable for growing different vegetables, flowers and medicinal plants can be used with soil or soilless (cocopeat) growing medium. The advantages of this vertical structure are i) can be accommodated in floor area of one square meter, ii) fresh vegetables grown can be consumed, iii) different sizes of plant pots/grow bagscan be accommodated, iv) consumer also controls the use of fertilizer, pesticide and inspective to its safe limit and he also knows what he consumes, iv) structure suitable for handling in terms of height of reach, mobility, requirement light available to all the pots and v) effective utilization of maximum area for growing plants. Plants like tomato (pot size- 16" dia. and 12" height), chilli, brinjal, French bean, peas etc., (pot size- 12" dia. and 10" height) which need bigger size pot, grow to a height about 2 feetand require

more growing media are placed at the base of the structure. Leafy vegetables like amaranthus, coriander, palaketc., (pot size- 26" x 8"x 6" (LxWxH)) and medicinal plants like brahmi, pudina, pepper mint, amruthaballi, doddapatre, madhnashini, thippali, ashwagandha, shatavari etc., (pots size -14" x 8"x6" (LxWxH)) are placed upper levels. A 25 litre plastic container at the top of the structure with necessary drip laterals, microtubes and drippers are also provided to water the plants.Yield of 200 gto 5 kg of produce (depending on the crop) can be harvested per crop cycle. The cost of vertical garden structure is Rs. 22,000.

28. **Name of the Technology**: Spray Dried Avocado Powder

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the Technology: Avocado is a seasonal fruit with important nutraceutical and cosmeceutical properties. This process technology involves spray drying avocado pulp homogenized with acidulant, emulsifier and encapsulating agent, at optimized conditions of inlet temperature, feed flow rate and encapsulate concentration. High quality avocado powder, stable for more than three months at room temperature is obtained. This product will ensure year round demand for avocado fruits, as also supply of the value added Spray Dried Avocado Powder, which is convenient to use and transport. There is a promising market both within India and abroad for this product. The Cost: Benefit ratio is 1:1.78.

29. **Name of the Technology**: Arka mango special

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the Technology: The formulation is 99.5 to 100% water soluble. The product is for foliar application. By applying to foliage the quantity of mango special can be minimized thus the cost of cultivation is reduced. The indiscriminate application of mango special to soil can be hazardous since all these micronutrients act against microorganisms. The results are quick through foliar spray and the results are visible within 72 hours after spray. The efficiency of formulation is more than 90%. Finally the product is cost effective, farmer friendly and environment friendly in promoting mango cultivation in the country.

30. **Name of the Technology**: Arka Banana Special

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2019

Description of the Technology: The formulation is nearly 100% water soluble. The product is for foliar application. By applying to foliage the quantity of banana special can be minimized thus the cost of cultivation is reduced. The indiscriminate application of micronutrients to soil can be hazardoussincethey act against microorganisms, hence foliar spray of Arka Banana Special is recommended. The results are quick through foliar spray and the results are visible within 72 hours after spray. The efficiency of formulation is more than 90% . Finally the product is cost effective, farmer friendly and environment friendly in promoting banana cultivation in the country.

31. **Name of the Technology**: Technology for probiotic Pomegranate juice

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: Probiotic fruit drinks are not available commercially in the country, though Dairy based probiotic products are readily seen in the retail outlets and other stores. However, there has been an increasing demand in the Indian market for novel healthy and refreshing beverages without the addition of any chemical additives or preservatives. Indian population also comprise of strict vegans, people having lactose intolerance a part of population having reluctance to consume products rich in fats or cholestrol. Therefore, it was felt that development of probiotic Pomegranate juice could be an alternative for such population in addition to finding acceptability among the general Indian population. Probiotic Pomegranate juice was developed after a thorough screening of the probiotic strains, pre- adaptation, evaluation of different organic additives to support growth of the screened strain, regular sensory evaluation and shelf life studies during refrigerated storage. The developed probiotic Pomegranate juice is not available commercially in the country and will fall into the category of the novel fruit beverages. The product does not contain any added water, sugar, chemicals or preservatives and has a shelf life of more than three months under refrigerated conditions. The product retains its natural taste and flavour besides the required cell population at the end of the shelf life.

32. **Name of the Technology**: Solar power operated tricycle cart for fruits and vegetable vending

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: It can be built on any small base vehicle ex.: TATA ACE, Intra etc. 300 kg capacity. Evaporative cooling, TV, audio system, digital balance, GPS systems, LED lights are fitted and run by solar power. S.S angles, sheet, Cost: Rs. 12 lakhs at Bengaluru (cost varies depends on base vehicle). It saves 10 – 15 % of post-harvest losses.

33. **Name of the Technology**: Arka Haagalarasa: Ready -to-serve (RTS) Bitter gourd Juice

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: The product is prepared by washing gourds, cutting into pieces, removal of seeds and inner fibrous material and blending in a mixer. Further depending on the requirement either it is sieved or unsieved and required ingredients such as- cucumber; omseeds lime, coriander leaves, pepper, etc were added and RTS juice prepared. It is less bitter than Bitter Gourd fruit and highly beneficial for persons suffering from diabetic. The product can be stored more than 6 months at room temperature. The product is highly profitable for Start-Up entrepreneurs, Small and Medium Enterprises involved in fruit and vegetable processing and Fruit beverage Processing Industry.

34. **Name of the Technology**: Arka Avocado chutney

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: The product is prepared from Avocado fruit pulp after removing seeds and addition of different ingredients such as sugar, Ginger, Garlic Paste, Onion, Salt, Red chilli powder, oil etc. It can be regularly consumed as chutneys due to the incredible health benefits it has due to the butter fruit. The product is highly profitable for Start-Up entrepreneurs, Small and Medium Enterprises involved in fruit and vegetable processing and Fruit beverage Processing Industry.

35. **Name of the Technology**: Arka Sasya Poshak Ras: A Liquid Nutrient Formulation for Soilless Vegetable Production

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: The liquid nutrient formulation (comprising solutions A & B) is a unique balanced blend of the macro (N, P, K, Ca, Mg and S)and micro nutrients (Fe, Mn, Cu, Zn, B and Mo)which are required to support the growth of vegetables grown on cocopeat. This nutrient formulation is suitable for most commonly grown vegetables (tomato, chilli, cabbage, zucchini, cucumber, ridge gourd, French bean, peas, cow pea, dolichos etc.) and leafy vegetables (amaranthus, coriander and palak etc.). It is highly suited for cocopeat based cultivation under balcony/ terrace gardening/open and polyhouse conditions.

36. **Name of the Technology**: Jackfruit chocolate (ARKA JACHOLATE)

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: Arka Jackolate is jackfruit seed powder and mushroom based chocolate developed by ICAR-IIHR, Bengaluru. Seeds constitute 12-23% of a fresh jackfruit, which is thrown away as waste. Jackfruit seed contains 60-65% starch (RS-Type-2), 2% crude fibre and an array of phytochemicals reported to have antibiotic and anti-cancerous properties. A technology has been developed to deliver such a wonderful natural product to the body through chocolate, which is most liked by all age groups. The technology comprises of packaging jackfruit seed powder with several other natural ingredients like mushroom, sesame, butter,etc., in certain a proportion and wrapping it with chocolate. The product is highly tasty and nutritious with 5.0-6.0% protein, lesser fat and calorific value, higher fibre and antioxidant activity.

37. **Name of the Technology**: Arka Iron Fortified Mushroom

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020

Description of the Technology: It is production of iron fortified elm oyster mushroom (Hypsizygusulmarius). The iron content of iron fortified mushroom has increased from 135.60ppm in non-fortified mushroom to 338.15ppm in iron fortified mushroom which is an increase of 149.37%. The bioavailability of iron from iron fortified mushroom is 21.68% which is very high as compared to iron bioavailability from plant sources which is 5-8% or from inorganic iron supplements which is 10-12%.

38. **Name of the Technology**: Arka Mushroom Millet Cookies

Source of the technology: ICAR-IIHR, Bengaluru

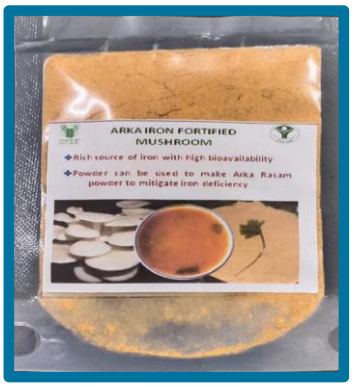
Year of the technology: 2021

Description of the Technology: It is a zero Maida (refined flour) product with millet flour and mushroom powder as the base ingredients. It is a zero white sugar and zero preservative product. It has higher protein content of 13.5-15%, much higher than commercial millet cookies available in the market having 6-7% protein. The ICAR-IIHR mushroom millet cookies has a much lower carbohydrate as compared to commercial samples. The calcium content of ICAR-IIHR mushroom millet cookies is much higher than the commercial samples.

39. **Name of the Technology**: Arka Iron Fortified Mushroom

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2020



Description of the Technology: It is production of iron fortified elm oyster mushroom (Hypsizygusulmarius). The iron content of iron fortified mushroom has increased from 135.60ppm in non-fortified mushroom to 338.15ppm in iron fortified mushroom which is an increase of 149.37%. The bioavailability of iron from iron. Production technology of Pleurotus tuber-regium: Arka PT-1

40. **Name of the Technology**: Arka Floral Agarbathi and Dhoop

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2022

Description of the Technology: The floral incense sticks are plant based, biodegradable and eco-friendly. It can be prepared both from individual flower wastes like rose, marigold, tuberose, gladiolus, chrysanthemum, china aster etc. and also with the mixture of floral wastes.The smoke emitted has lesser toxic pollutants like CO, SO2, NO, VOCs, compared to commercial charcoal-based incense sticks, and thereby it is safe for human health besides reducing the environment pollution. It has twenty minutes more burning time, hence is more efficient compared to charcoal-based incense sticks. The natural colour of the flower adds beauty to the finished product. The benefit cost ratio of the technology is 2.3:1. It can be stored for 12 months under ambient condition without much reduction on the burning time and quality. The product also confirms to the Indian Standard Agarbatti specification as per Bureau of Indian Standards (BIS).

41. **Name of the Technology**: Arka Vertical Farming Module

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2023

Description of the Technology: The vertical farming structure comprises of a main frame of A shape and 11 no's of vertically stacked support frames for the vertical stacking of growbags (500-micron HDPE black coloured growbags) of dimension 6'X 1' X 1' with 5 tiers on each side and 1 top level (5'+5'+1'= 11 tiers) in a slanting manner at a particular angle for proper harvest of natural light in all layers of grow bags for the vertical farming of Lilium. Complete protocol along with the optimum nutrient, water and light weight

structure, soilless substrate/ growing media requirement was developed for vertical farming of Lilium with a utilization of 12' vertical space of the polyhouse, an increase in planting density by 6 times. The structure has the load bearing capacity up to 2 tonnes. Water saving to the tune of 81 % under wick system of irrigation and 76 % under drip system was obtained against the conventional farming. Provision has been made in the vertical farming structure for either drip irrigation or wick irrigation. Effective space utilization (vacant floor space) of vertical structure by use of grow bags of 6'X4' X1' for production of shade loving ornamentals suitable as cut foliages like Dracaena massangeana, ferns etc. to fetch additional returns. Effective space utilization (upper inner tiers of the vertical structure) by use of mild steel flats for production of shade loving ornamentals suitable as potted plants like Anthurium, Palms etc. To obtain additional returns. The Vertical farming module was cost effective with a B: C ratio of 2.18.

42. **Name of the Technology**: Arka Fresh Cut Fruit Technology

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2023

Description of the Technology: Ready- to- eat, zero wastage fruit pieces with characteristics similar to fresh fruits. Technology is based on modified atmosphere packaging. The product is free from additives. The products have got good appearance with > 3.5 sensory score on a 5-point. Hedonic scale after 10 days of storage (at 8 o C). Products are suitable for retailing in open chillers (8 oC) available in supermarkets (7-10 days shelf life). The products confirm to the microbiological quality standards specified by FSSAI.

43. **Name of the Technology**: Arka Jack Chunks Storage Technology

Source of the technology: ICAR-IIHR, Bengaluru

Year of the technology: 2024

Description of the Technology: The technology developed involves a combination of solution having FSSAI Approved Class I & II preservatives and Retort Packaging that gives long extended shelf life. The standardized solution when filled into the retort packs along with tender jackfruit chunks (with or without blanching), sealed and sterilized would remain good for 18 months. The tender jackfruit chunks can be used for cooking or making various kinds of products anytime during this period. The product is free from additives and preserved in its natural form. The products have got good appearance without significant change in color and texture. The product conforms to the Food Product Standards 2.3.3 “Thermally Processed Vegetables”, of FSSAI.

44. **Name of the Crop:** Tomato (var. Arka Apeksha (H-385)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2019

Description of the variety: It is a high yielding hybrid developed by crossing ITHR 2834 and ITHR 2918. It has triple disease resistance to Tomato Leaf Curl Disease (Ty1+Ty2), Bacterial wilt and Early blight. Plants are semi-determinate with dark green foliage. Fruits are firm, deep red, oblong, medium large (90-100g) with iointless (j2) pedicel. Fruits are suitable for processing as they have TSS (4.7° Brix), acidity (0.36%), lycopene (14.15mg/100g fresh weight). Recommended for summer, kharif & rabi cultivation. It has a yield potential of 43 to 90 t/ha in 140- 150 days.

45. **Name of the Crop:** Tomato (var. Arka Vishesh (H-391)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2019

Description of the variety: It is a high yielding F1 hybrid developed by crossing ITHR 2834 and ITHR 2917. It has triple disease resistance to Tomato Leaf Curl Disease (7y/+7y2), bacterial wilt and early blight. Plants are semi-determinate with dark green foliage and joint-less pedicle. Recommended for summer, kharif & rabi cultivation. It has a yield potential of 43.3-90 t/ha in 140-150 days. Fruits are firm, deep red, oblong and medium large (90-100g). Fruits have a TSS of 4.6o Brix), acidity (0.36%) and lycopene content of 14.14 mg / 100 g fresh weight.

46. **Name of the Crop:** Dolichos Bean (var. Arka Supriya)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2019

Description of the variety: Pole type, photo-sensitive, white flower. Pods setting from base from the first node. Pods are light green, flat and long bearing in clusters. Pods green, long (16 -18 cm). Suitable for fresh market. The pods are excellent for dry and wet culinary preparations. When the fresh pods have medium matured seeds they are nutrionally rich in protein and minerals. Pod yield 27 to 28 t/ha. This variety has been recommended for release for Zone 7 [MP (excluding eastern area) & Maharastra and 8 (Karnataka, TN & Kerala) at the central level.

47. Name of the Crop: Chilli (var. Arka Tejasvi)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2019

Description of the variety: Suitable for dry small (Teja) segment, plants are medium tall & spreading, fruits are pendent, 7-8 x 1-1.1 cm , firm, highly pungent (90-95000 SHU), green and turn deep red (90-100 ASTA) on maturity medium wrinkled and resistant to powdery mildew and ChLCV.. The yield potential is 30-35q dry chilli yield/ acre

48. Name of the Crop: Chilli (var. Arka Yashasvi)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: Suitable for dry medium segment, plants tall & spreading, fruits pendent, 9-10 x 1.2-1.4 cm, firm, medium pungent (40-50000 SHU), green and turn deep red on maturity (90-100 ASTA), medium wrinkled and tolerant to powdery mildew, RKN (root knot nematodes) and resistant to ChLCV. .The yield potential 30-35q dry chilli yield/ acre.

49. Name of the Crop: Chilli (var. Arka Gagan)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: Suitable for Green Upright segment, plants medium tall & spreading, fruits pendent, 7.5 - 8.5 x 1-1.1 cm , firm, highly pungent (1-1.2 lakh SHU), green, medium wrinkled and tolerant to root wilt, RKN (root knot nematodes) and resistant to ChLCV . The yield potential 100 q green chilli yield / acre.

50. Name of the Crop: Watermelon (var. Arka Shyama)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: It is an icebox segment watermelon variety with dark greenish black rind, oblong fruit shape of 3-4kg weight, early (65-70 days to harvest) possessing dark red coloured, crispy, sweet (TSS-12%) flesh. The yield potential is 62.8 t / ha

51. Name of the Crop: Bottle Gourd (var. Arka Ganga F1)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: F1 hybrid Arka Ganga is moderately resistant to gummy stem blight (Didymella bryoniae) with a yield potential of 55 t/ha. It has been developed by crossing the inbreds, BG 114-3 x BG 98. Fruits are green and short cylindrical. This hybrid will be ready to first picking by 56 days.

52. Name of the Crop: Bottle Gourd (var. Arka Shreyas)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: Inbred line Arka Shreyas resistant to gummy stem blight (Didymella bryoniae) with yield potential of 45 t/ha. It has been developed by individual plant selection from germplasm accession BG 77. Fruits are green and club shape. This variety will be ready to first picking by 65 days.

53. Name of the Crop: Bottle Gourd (var. Arka Nuthan)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: Inbred line Arka Nuthan is resistant to gummy stem blight (Didymella bryoniae) with a yield potential of 45 t/ha. It has been developed by individual plant selection from germplasm BG 114 collected locally. Fruits are green medium cylindrical. This variety will be ready to first picking by 55 days.

54. Name of the Crop: Teasel gourd (var. Arka Bharath)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2020

Description of the variety: It is a vigorous growing plant; vine grows up to 6 m tall and robust. Fruits are attractive, dark green, long oval fruit with soft seed and high quality edible pulp portion for culinary purpose. Individual fruit weight is 110 g. The fruit yield potential is 10 t/ha.

55. Name of the Crop: Cucumber (var. Arka Veera)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2021

Description of the variety: Yields 28.51 t/ha in 90-100days duration. Tolerant to downy mildew disease. Early flowering and female flower at 3rd node. Takes

27-34 days for the first female flower appearance and 42-45 days for first picking of fruits. Green with light green colour, cylindrical fruit, smooth free from internal core split and bitter taste. Nutritionally rich in antioxidant activity and minerals like, Calcium, Potassium, Magnesium and Zinc.

56. Name of the Crop: Amaranthus (var. Arka Neelachal Ruchitha)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2022

Description of the variety: Pure line selection of Amaranthus blitum developed at CHES, Bhubaneswar. Multi cut type, fleshy tender yellowish green stem with obovate, small green leaves having an yield potential of 22.59 t/ha.Resistant to white rust (Albugo bliti (Biv.) Kuntze.

57. Name of the Crop: Amaranthus (var. Arka Neelachal Vrichitha)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2022

Description of the variety: Pure line selection of Amaranthus tricolor developed at CHES Bhubaneswar. Pulling type, fleshy tender greenish pink stem with ovate, green leaves having purple blotches, suitable for rabi and pre-summer season. Resistant to white rust having an yield potential of 7.08 t/ha.

58. Name of the Crop: Brinjal (var. Arka Neelachal Yodha)

Source of technology/variety: ICAR-IIHR, Bengaluru

Year of release: 2022

Description of the variety: Pure line selection developed at CHES Bhubaneswar. Plants are tall, erect and vigorous in growth habit.Fruits are green with white patches having green calyx, oblong and medium in size (90 to 110 g).

59. Name of the Crop: Brinjal (var. RC Manikhamen-1)

Source of technology/variety: ICAR-RC-NEHR, Manipur Centre

Year of release: 2021

Description of the variety: The variety bears 12-18 nos. of fruits per plant. The average weight, length and diameter of fruits are 60-80 g, 16-18 cm and 3-3.5 cm, respectively. The fruits are cylindrical with slight curvature with uniform glossy purple color skin. The variety has been found to be suitable for both hill (up to 1500 m above msl) and valley areas in North-eastern states and recommended for transplanting during May-June and February-March. The potential yield is 340 q/ha under good management practices. The variety is tolerant to bacterial wilt.