

Innovative Interventions by Farmers in Horticulture

Indian HortiCulture Congress

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Horticulture for Inclusive Growth

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Management of Pink Berry Melody in Grape

Personal Information

Name of the farmer	Shri Ashok Vishnupant Gaikwad
Age	64 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	At. Post. Pimpalgaon Baswant, Tal: Niphad, Dist: Nashik - 422209
Educational Background	Final Year, Bachelor of Arts
Telephone number (Residence)	-
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Information on Innovation



Type of innovation : Covering Grape Bunches to Control Pink Berry Melody

Specific group : Fruit crops: Grape

Existing practice : Development of pink colouration on berries is mainly noticed on white seedless grapes. Apart from abnormality of colour, these affected berries do not develop the required size and sugar as compared to the healthy berries. These affected bunches also have poor shelf-life which reduces domestic market value and are unfit for export. Earlier information was not available about the causes and remedies for pink berry development in grapes. Hence there was no solution available to the farmers to protect against losses due to this problem.



Pink berry affected bunches

Details of innovation : Mr. Gaikwad along with other farmers were suffered huge losses due to pink berry in Thompson Seedless and its clones such as Tas-A-Ganesh, etc. As there were no scientific studies on this malady, Mr. Gaikwad started making observations in his vineyards and also started interacting with farmers. The time of harvesting and packing for the exportable grapes was during months of

March and April. The grapes which were ready to harvest in the month of March were having the problem of pink berry and the grapes which were ready to harvest in the month of April were free from it. Then he observed that the grapes in which sugar development in berries started in January were having more pink berry formation than those which started sugar development in March. He noticed big difference between day and night temperatures, along with the high humidity in January as compared to March. He also found out that the bunches which were on the outer canopy in the vineyard were having more pink berry than the grapes which were on the inner canopy. He deduced that the outside bunches were more exposed to the cold wind than the inside bunches.



Covering of bunches with paper

He started his experiments in the month of February 1996 by covering the bunches with paper in some vines. When the grapes were ready to harvest, he removed the paper and observed that there was no pink berry in the bunches which were fully covered with the help of paper as compared to the open bunches of the same vine which had about 80 percent of berries with pink berry. In addition, the covered bunches had uniform berry colour which was a good attribute for export.

During 1997, he covered all bunches with paper in his vineyard and he did not suffer any loss due to pink berry. He popularised this innovation among the growers of Nashik region during that time his farm was visited by many grape growers. Since that time Maharashtra grape farmers started to cover bunches with paper with good results.

Usefulness of innovation :

- Management of pink berry.
- Uniform berry colour which is a desired trait for exportable table grapes fetching higher returns.
- This innovation is also helpful for farmers in Solapur and Sangli grape regions to produce good quality grapes for raisin making. The raisins retained desirable green skin colour even when the grapes matured in the adverse conditions of high temperatures of 35-45 degree celcius, low relative humidity (35-45%) and bright sunlight which discolour the grapes.

Impact : Now, almost all the grapes which are exported from Maharashtra are covered with the paper which has provided efficient and cost-effective management of pink berry and also provided uniform colour to berries.

Adoption by others : In Maharashtra, during 2012-13 around 22 thousand grape farmers have registered their farms for export with the Department of Agriculture; Maharashtra Government which means that around 22 thousand hectares of vineyards are at present covering bunches with paper.

Recognitions : Innovative Farmer Award in Pusa Krishi Vigyan Mela, Indian Agricultural Research Institute, New Delhi during February 5-7, 2014.

Message :

Indian grape growers are producing good quality table grapes and raisins which have created their own niche in the international market. In the era of climate change and globalization, grape growers need to update themselves with current research and mechanization technologies to sustain competitiveness of Indian Grape Industry.

Orange Fruit Harvester

Personal Information

Name of the farmer	Shri Tana Tada
Age	46 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Village Laptap, Toru, Sangalee,
Educational Background	12 th Standard
Telephone number (Residence)	-
Telephone number (Mobile)	09402427347
Email ID	-

Information on Innovation



Type of innovation : Indigenous Orange Fruit Harvester

Specific group : Fruit crop: Orange

Existing practice : Oranges are plucked by using bamboo poles having a sharp blade or bamboo slice at the tip of the pole to cut the fruit stalk. While harvesting the fruits fall to the ground and get bruised due to the impact. Some farmers resort to vigorous shaking of the trees to harvest the fruits. In this method also the fruits get badly bruised. The bruised fruits often get infected in transit and marketability of such fruits is negligible.

Details of innovation : A new orange fruit harvester was fabricated by Shri Tana Tada from commonly available Bamboo. The bamboo has been sliced at the top portion in the form of conical shape basket where in, the fruits easily fits. This prevents the orange from falling down to ground. The long bamboo pole makes harvest easy and thus can pluck the fruits while standing from the ground.

Usefulness of innovation : This fruit harvester could be easily used for harvesting the fruits without deteriorating the quality of the fruit.



Impact : Though it consumes more time to harvest the fruits, the quality of fruit is maintained for longer duration. Since there is a heavy spoilage of fruits due to the traditional method of harvesting by shaking the fruit trees or manually which is also very much time consuming. The cost benefit is 1:6.

Adoption by others : The adoption rate of the intervention is 60% in his village.

Scope for commercialization : The tool is very simple and can be fabricated by individual farmers and hence the need to commercialize does not arise.

Recognitions : Identified as innovative farmer by the ICAR

Documentation : Yes in Farm Innovators -2010 of ICAR

Message :

The farmers need to improvise the tools and implements available with them to suit their requirements and solve the problems being faced by them in day to management of crops.

Virus Resistant Ash Gourd Variety: Eklavya

Personal Information

Name of the farmer	Shri A.S. Joy
Age	40 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Alappatt House, Post - Puthanchira, District - Thrissur, Kerala - 680 682
Educational Background	B.A (Economics)
Telephone number (Residence)	-
Telephone number (Mobile)	09447815652
Email ID	joyalapat2010@gmail.com

Information on Innovation



Type of innovation : Virus Resistant Ash Gourd Variety: Eklavya

Specific group : Vegetable crops: Ash Gourd

Existing practice : Existing ash gourd varieties are susceptible to yellow mosaic virus, resulting in leaf yellowing, stunting of growth and malformation of fruits. The plants usually get affected at one month stage of crop resulting in total crop loss. Farmers are not able to control this disease by usual plant protection measures.

Details of innovation : Yellow Mosaic Resistant ash gourd variety Ekalavya has been developed by Shri. A.S.Joy by crossing a local variety with a resistant variety followed by repeated selection. Ekalavya takes 35-40 days to flower and 90-100 days to mature. The average weight per fruit is 12 kg during monsoon and 4-6 kg during summer. Average yield is 250 quintals per ha with average yield of 10 kg per plant. It is a short duration variety and has good cooking quality as well as taste. Dark green colour of the leaves is the major specialty of this variety.

Usefulness of innovation : Ekalavya is found to be highly adaptive, high yielder and resistant to yellow mosaic virus.



Impact : Ekalavya is ideal for areas affected by the Yellow Mosaic Virus.

Adoption by others : At present 500 farmers are cultivating this variety.

Commercial gains : The farmers lose the entire crop when the virus attacks. Cultivation of Ekalavya enables the farmers to harvest 250 quintals/ha of fruits in a year which is highly remunerative.

Scope for commercialization : The variety has the potential to be commercialized.

Recognitions : Her Excellency Smt. Pratibha Patil, President of India presented the National Award to Shri A. S. Joy for developing Yellow Mosaic Resistant ash gourd variety Ekalavya and cash prize of Rs.25000/- in the Fifth National Grassroots Technological Innovations and Traditional Knowledge Awards Ceremony held on 18 November, 2008.

Documentation : Yes in Farm Innovators -2010 of ICAR

Message :

The best way to overcome diseases is by growing resistant varieties so that the farmers can minimize the cost on expensive plant protection chemicals.

Onion Nursery

Personal Information

Name of the farmer	Smt. Machhar Lalkiben Dhanabhai
Age	46 Years
Gender	Female
Complete Postal Address with village, mandal, district, state name and pin code	At: Manawala Borida, Ta: Fatepura, Dist: Dahod, Gujarat
Educational Background	Illiterate
Telephone number (Residence)	-
Telephone number (Mobile)	+91-9909100155
Email ID	-

Information on Innovation



Type of innovation : Onion Nursery

Specific group : Vegetable crops: Onion

Existing practice : Cultivation of maize, castor, pigeon pea and gram etc.

Details of innovation : Smt Lalkiben is illiterate farm women. She has 4.5 acre land with limited irrigation facilities. She grows traditional crops like maize, wheat, chickpea, and pigeon pea with animal husbandry.

She is innovative in nature and is interested in increasing income from available resources. To seek such type of information visited the Krishi Vigyan Kendra, Anand Agricultural University, Dahod in the year 2010. The scientists of KVK suggested to raise vegetable nursery for higher income. Then, she decided to grow onion nursery in 1.0 acre land and rest of crops in remaining land before establishment of onion nursery, the KVK scientists suggested that the first step in successful vegetable production is to raise healthy vigorous seedlings. Young plants whether propagated from seed or vegetatively require a lot of care particularly during the early stages of growth. They have to be protected from adverse temperatures, heavy rains, drought, wind and a variety of pests



and diseases. If small seeded vegetables are sown directly in the field, germination is often poor and the young plants grow very slowly and require a long time to mature. Then after she started onion nursery on the flat bed by staggered sowing (interval of 15 days).

Usefulness of innovation : Onion nursery raising technology is valuable tool already being used to increase income by Tribal farmers in Dahod district of Gujarat state.

Impact : Earlier in *rabi* season, she cultivated traditional crops and earned Rs. 37800, after innovative intervention, she earned net income Rs. 53420, 76060 and 94840 during last three years (2010-11, 2011-12 and 2012-13, respectively).

Adoption by others : This village has 75 farm families. Before three years only two to three farmers/ farm women were producing onion seedlings in small scale. Now a days more than 30 farmers are producing onion seedlings in large scale, whereas other farmers are producing on small scale. Besides this some of the farmers are also producing others vegetable seedlings viz. cabbage, cauliflowers, tomato, brinjal etc.

Commercial gains : Higher net income as compared to traditional practices

Scope for commercialization : Bulk production of onion seedling through Self Help Groups to maintain market price and to reduce the transportation cost.

Documentation : In the Annual Progress Report-2013-14 of Krishi Vigyan Kendra, Anand Agricultural University, Dahod.

Message :

Farmers of this region are advised to shift to vegetable cultivation instead of traditional crops for getting higher net return.

Poly Bag Filling Device

Personal Information

Name of the farmer	Shri Simon George
Age	54 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Palamoottil House, Post - Karippal, Perumpadavu, District - Kannur, Kerala - 670 581
Educational Background	10 th Standard
Telephone number (Residence)	-
Telephone number (Mobile)	09495728733
Email ID	-

Information on Innovation



Type of innovation : Poly Bag Filling Device

Specific group : Machinery

Existing practice : The poly bags are filled with growing medium manually across the country.

Details of innovation : Developed device consists of a funnel made of zinc sheet having 18 gauge thickness and 36 inch diameter on the upper and 11 inch diameter at the lower end. This funnel is connected to a galvanized iron pipe having 1.25 inch diameter and 26 inch length in a slanting position fixed to an iron table of 15 inches square shape with 10 inches height. Poly bag is opened and kept under the funnel. The potting mixture filled the funnel falls directly into the poly bag. Container for taking potting mixture to funnel is made of tin.

Usefulness of innovation : The devise eliminates the need for manual filling of the poly bags which is time consuming and labour intensive.

Impact : Poly bag filled with potting mixture is widely adopted in nurseries for plant propagation. Manual filling of poly bag is laborious and time consuming as well as expensive too. In normal



method, one labour can fill 125 poly bags of size 55 x 25 cm in a day whereas with the help of this device, 2 labourers can fill 1000 bags a day. Further, potting mixture fed to the funnel falls down to the opened poly bag correctly without any wastage as in the case of manual filling. It does not require electricity or other fuels and it is portable.

Adoption by others : This device is adopted by 117 nurseries successfully so far.

Scope for commercialization : The device has excellent scope for commercialization.

Recognitions : Identified as innovative farmer by the ICAR

He Presented the innovation in first Farmers Science Congress held at KVK, Kannur from 4-5 February, 2008. Displayed in the exhibition associated with first Farmers Science Congress and also displayed in Farmers' Science Museum at KVK, Kannur and received a certificate. Published in the proceedings of first Farmers Science Congress and also published as success story in newspapers.

Documentation : Yes in Farm Innovators -2010 of ICAR

Message :

Poly bag filling devise reduces the drudgery faced by the nurserymen while filling the bags manually. The devise also helps the nurserymen to improve the efficiency in an economic way.

Paired row Planting in Potato

Personal Information

Name of the farmer	Shri Rajmohan Debnath
Age	55 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	P.O. - Sonatala, District - West Tripura, Tripura
Educational Background	7 th Standard
Telephone number (Residence)	-
Telephone number (Mobile)	09863626475
Email ID	-

Information on Innovation



Type of innovation : Paired row Planting in Potato

Specific group : Vegetable crop: Potato

Existing practice : Potato is normally planted in single row system

Details of innovation : Paired row concept for cultivation of True Potato Seed (TPS) is the innovation in which, TPS are sown in narrow inter space of 10×10 cm with 5 cm for plant to plant distance. A total of 100 plants per sq. m were maintained. Two methods, viz., transplantation and seedling tuber were used for production of potato using TPS.

Usefulness of innovation : Very high level of plant population per unit area is the major utility of this concept.

Impact : This innovation is less laborious than single row system which need more time.

Adoption by others : The overall adoption is about 66% among potato growers of West District of Tripura.



Commercial gains : The production gets doubled from unit area of land which is very significant.

Scope for commercialization : This innovative intervention has the scope to double the production of potato from unit land. There is scope for commercialization of the innovation.

Recognitions : Member of Sonatola farmer club.

Documentation : Yes in Farm Innovators -2010 of ICAR

Message :

Adopt paired row planting of TPS in potato to double your production.

Drought Management in Vegetables

Personal Information

Name of the farmer	Shri Tripura Panja
Age	43 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Vill & P.O. - Monsuka, P.S - Udaynarayanpur, Dist. - Howrah, Pin - 711410
Educational Background	Madhyamik Passed
Telephone number (Residence)	-
Telephone number (Mobile)	9830659002
Email ID	-

Information on Innovation



Type of innovation : Innovation in Poly Mulching, Cocopeat, Pusa Hydrogel, Vermicompost to overcome drought

Specific group : Fruit/Vegetable crops: Cucurbitaceous crop, Bottle gourd, Tomato, Tuberose, Strawberry

Existing practice : Howrah district farmers are dependent on vegetables, flowers to augment per capita income. Due to scarcity of rainfall during cropping season as well as in the dry spell, there was crop loss to a tune of 20%. There was inadequate moisture in the soil and weed growth was rampant.

Details of innovation : Shri Tripura Panja in consultation with Howrah KVK has implemented following measures to manage the drought:

- Use of 250g vermicompost per pit which enhances water holding capacity of soil.
- Cocopeat was also added with an objective to enhance moisture capacity.
- 1 tea spoon of Pusa Hydrogel was used for 3-4 plants to hold water.
- *Trichoderma Viride* + *Pseudomonas* @5-7 gm/plant were applied to protect against fungal and bacterial diseases.



- 2-3 weeks after planting, Poly Mulching, was introduced with black/silver polythene of 30 gauge thickness which increases survivability of plants.
- Polymulching also controls termite attack to some extent.

Usefulness of innovation :

- Augmentation of yield to a tune of 25% in vegetables, 30% in Tuberose and 40% in Strawberry.
- There is an increase in quality of produce which fetches more market returns.

Impact :

- A continuous supply chain is established for vegetables, flowers.
- Demand is more for vegetables due to increase in quality.
- 25% increase of per capita income.

Adoption by others : This innovation is being disseminated with the help of KVK in Udaynaranayanpur block.

Commercial gains : Farmers who are adopting the technology have gained in respect of income to a tune of 15%.

Scope for commercialization : There is enormous scope to commercialize these technologies in Amta and Udaynaranayanpur blocks.

Recognitions : Shri Panja has received the following awards:

- Best Farmer award from udaynaranayanpur block in 2012.
- Best Exhibits in Krishi Mela in 2012, 2013 at KVK, Howrah.

Message :

Farmers need to adopt viable alternatives to overcome the drought in vegetables and flower crops to ensure higher yield and net profit.

Mulching in Watermelon

Personal Information

Name of the farmer	Shri Sugavanam Sivaparakasam
Age	61 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	S/o Sengoda Gounder 1/55, Kilakku kadu Kamalapatty (PO) Mangalapuram (via) Salem - 636202
Educational Background	9 th Std.
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Telephone number (Mobile)	94435 20832
Email ID	maniramesh1979@gmail.com

Information on Innovation



Type of innovation : Mulching in Watermelon

Specific group : Vegetable crops: Watermelon and Muskmelon

Existing practice : Farmers used to grow watermelon on raised beds under drip system with polythene mulching. They get two crops in two seasons i.e. Nov - Jan and Jan - Mar. After every crop they go for preparatory cultivation for that a period of one to two months is required. In this way the cost of preparatory cultivation also increases and the durability of the mulching sheet gets reduced. The farmer Thiru. Sugavana Sivaprakasam modified the practices so that he can get four crops in a year without any additional preparatory cost.

Details of innovation : He laid the mulching sheet for the entire field during October. For the first crop, he planted the seedlings in the alternate rows of beds during November. This crop comes to harvest during January. Meantime he takes up the planting for the second crop in the left out rows which comes to harvest in March. The third crop will be taken up in the first planted rows of beds by doing little bit of tilling operations in the month of May. Finally the fourth crop will be taken up in the



month of July which comes to harvest during September. Depending upon the market demand he planted either muskmelon or watermelon.

Usefulness of innovation : In this process he could fetch four crops in a year with one time preparatory cultivation. In addition to that to reduce the duration of the crop in main field he goes for portray seedlings. When other farmers normally go for dibbling the seeds. He could manage not only the labour requirement but also through the effective use of water soluble fertilizers he maintained the nutritional status of the soil too. As a result, he ensured continuous supply of fruits. The merchants from Kochi market come regularly to get the produce.

He has observed that the sucking pest infestation was less due to the heat emanated by the sheet, by which nearly Rs. 5000/ha was saved by farmers. Further the moisture content was maintained under the mulching sheet and hence frequency of irrigation and quantum of irrigation was also reduced.

Impact : Before the innovation, farmers were growing crop for only one season, but now they go for two crops in one time. Few neighbouring farmers like Th. Satyanarayanan of Kamalapatty and Th. Selvam of Thirumanur followed this model to get four crops of water and muskmelon alternatively in a year. They motivated other farmers to form watermelon growers association to get the sizeable quantity of fruits throughout the year by planned planting and harvest to have continuous supply of water and muskmelon to Kerala market. They are the model farmers for all the farmers who come on exposure visit to KVK from different parts of Tamil Nadu. The group has also purchased mulching sheet laying machine from Gujarat and they spare the machine for the fellow farmers on hire basis.

Adoption by others : The horizontal spread of innovations in the neighbouring field is 5% within a year. It is expected that if the trend continues within five years 50% of the farmers may follow the same practice.

Commercial gains : The farmer harvested on an average of 187 q of watermelon with 35.50% increase in yield and total income of Rs. 1,12,200/ ha, net income of Rs. 64,700/ha and BC ratio of 2.36. The cropping intensity has increased to 400%. The percentage of profit earned by the farmer is 75% higher than the conventional growers. Use of water, fertilizers and spray chemicals were reduced to 50%, 30% and 50% respectively in this model.

Scope for commercialization : As this innovation is pertaining to the cropping pattern there is little scope for commercialization. However, this innovation must be popularized to fetch maximum productivity with minimum input cost.

Recognitions : As it is recent in origin, it is proposed for recognition in this scientific forum.

Documentation : Yes, documented as success story in Ulavarin valarum velanmai, February 2014

Message :

Since, labour problem is a major curse to agriculture operations, following the improved technologies with reduced labour use will result in enhanced yield and quality produces. Making more production alone is not the end but he has to market and maintain the sustainability in the market link. For this farmers unity is needed to form a commodity group and they should link it with the market channel.

Recycling of Water through Capillary action

Personal Information

Name of the farmer	Shri V. Mahadevan
Age	52 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	38, Pondhavakkam Pondhavakkam, post - Ponneri, taluk - Tiruvallur, District - 601101
Educational Background	SSLC
Telephone number (Residence)	-
Telephone number (Mobile)	09994185536
Email ID	-

Information on Innovation



Type of innovation : Recycling of Water through the principles of capillary action in pot culture of fruits and vegetables

Specific group : Fruit/Vegetable crops

Existing practice : Pot culture of horticultural crops for terrace gardening in urban areas

Details of innovation :

- Capillary action can be effectively used for pot culture
- When watering, the potted plants after saturation of soil, excess water will be drained through coconut coir or coconut husk and collected in polythene container at the base of pot.
- During water shortage (for a day or two) water in the plastic container will be circulated to the pot by capillary force and plant could make use of it.
- Effective utilization of available resources viz., place, water, sunlight and fertilizer in urban area. Household vegetables production could increase to 60%.
- Roof gardening can be effectively practised without affecting roof structure.



Usefulness of innovation : Easy method for adoption in the urban households for production of fruits and vegetables organically. Effective utilization of available resources viz., place, water, sunlight and fertilizer in urban areas.

Impact : Satisfaction of getting fresh fruits and vegetables from our own roof garden by effective utilization of growing medium, inputs, fertilizers, water, energy and space.

Adoption by others : Yet to be adopted

Commercial gains : Expenditure towards purchase of vegetables is nil besides getting organically grown fresh vegetable from his own roof garden.

Scope for commercialization : This technique can be up-scaled in urban households by providing subsidy for purchasing roof garden kit for terrace gardening.

Recognitions :

- Selected as an innovative farmer during farm innovators day meet at KVK, Sikkal in 2012.
- Presented poster in the Farmers First Conserving Soil and Water Resources (FFCSWR), 2013 conducted by IASWC from 14th to 16th March 2013 at Bangalore.

Message :

Expenditure towards purchase of vegetables is merely nil and getting organically grown fresh vegetable from our own roof garden by effective utilization of available resources such as place, water, sunlight and fertilizer gives a great satisfaction.

Microirrigation in Vegetables

Personal Information

Name of the farmer	Shri Niserta Sureshbhai Chatrasinh
Age	39 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	At: Mota Kaliya Ta: Fatepura Dist: Dahod Gujarat
Educational Background	9 th Standard
Telephone number (Residence)	-
Telephone number (Mobile)	-
Email ID	-

Information on Innovation



Type of innovation : Micro irrigation in Vegetables

Specific group : Vegetable crops: Brinjal and Tomato

Existing practice : The tribal farmers of Dahad District practice cultivation of traditional crops that are common in this region. Due to inadequate awareness and resource poor status of the tribal farmers, they do not venture into areas that involve capital investment. Therefore the technology adoption is very slow.

Details of innovation : Scarcity of water in rainfed areas is serious problem with regard to cultivation of agricultural crops among farmers. This condition is being faced by tribal farmers of Oahod District, due to such prevailing situation, farmers cannot shift towards diversification i.e cultivating vegetables and horticultural crops. Therefore, the latest concept of irrigation by drip system was advised by KVK scientists. But due to the high cost of MIS, all the tribal farmers cannot afford it. Thereby, the MIS were installed at some farmers' field by the funding of NAIP-III project. As a result these tribal farmers have grown vegetables and horticultural crops, thus earning high returns from MIS, as it saves water, results in early maturity and plentiful harvest, season after season.



Usefulness of innovation : Drip irrigation is adopted extensively in areas of acute water scarcity and rainfed condition. The tribal farmers used MIS in vegetable cultivation to increase net return.

Impact : The farmer installed MIS as it results in high WUE, lower labour and fertilizer costs. So it is one of the best solutions to increase the income of tribal farmers. Through NAIP-3 project, they were also provided with vegetable seeds as well as information regarding operation and advantages of MIS. Therefore, after this success, farmers are ready to install MIS at their own cost and cultivating the vegetable crops.

Adoption by others : After this success, more than 25 farmers have installed micro irrigation system at their own cost and are cultivating the vegetable and other horticultural crops and getting higher net return.

Commercial gains : The farmers are receiving qualitative and quantitative production with higher income.

Scope for commercialization : Water application efficiency is high, demand for energy is low, fertilizer and nutrient loss is minimized due to localized application and reduced leaching and good return through adoption of MIS. Hence MIS has become commercial throughout the country.

Documentation : The intervention is documented in Annual Progress Report-2013-14 of Krishi Vigyan Kendra, Anand Agricultural University, Dahod Campus.

Message :

The tribal farmers of this region are encouraged to install MIS for saving limited available water to improve the water, fertilizer use efficiency so as get higher net returns

Cabbage Under Shadenet

Personal Information

Name of the farmer	Shri V. Mahadevan
Age	52 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	38, Pondhavakkam Pondhavakkam, post - Ponneri, taluk - Tiruvallur, District - 601101
Educational Background	SSLC
Telephone number (Residence)	-
Telephone number (Mobile)	09994185536
Email ID	-

Information on Innovation



Type of innovation : Cabbage Under Shadenet

Specific group : Vegetable crops: Cabbage

Existing practice : The farmers of Tiruvallur district cultivate vegetables depending on the water availability and do not adopt any crop diversification since the farmer had strong mind-set towards traditional paddy cultivation. Cultivation of routine vegetables viz., brinjal and bhendi was followed in the existing conventional cropping system.

Details of innovation : The farmer Shri V. Mahadevan constructed a shadenet house for raising vegetable nursery. In that, he used portray for raising the vegetable nursery viz., brinjal, chilies and tomato wherein he mixed cocopeat and vermicompost in equal proportions as the media for portrays. This has reduced the cost of input viz., cocopeat as he substituted half a portion of cocopeat with vermicompost prepared by him. This produced sturdy seedlings with good root growth and on transplanting reduced the mortality percentage due to better establishment.

The farmer had made use of the shadenet house that has been used for raising nursery to a much better way of growing an alternate crop during the offseason viz., cabbage. Instead of growing the



same conventional crops under drip and fertigation system, the farmer had gone for cultivation of cabbage under shadenet house with drip and fertigation.

Usefulness of innovation : The concept of shadenet house has been utilized for nursery raising as well as cultivation of cabbage during the offseason. He has reduced the input cost by using vermicompost as the only source of nutrients. This indicates the strength of the technology that can be utilized effectively by the farmer to make agriculture a success during the offseason without incurring additional expenditure. He is intended to extend the area under shadenet house and introduce other vegetable crops that can be grown under shadenet house. This concept not only utilizes the available water but also reap more benefit and income during the off season.

Impact : The farmers of Pondhavakkam village have now been inspired to use the shadenet house for growing vegetable nursery on community mode which will further reduce the cost of inputs for raising a vegetable nursery by individual farmers.

Commercial gains : From this, he is expected to earn an additional income of Rs.25,000 per acre from the shadenet house. He has reduced the input cost by using only vermicompost as a source of organic manure.

Scope for commercialization : The farmers can utilize the concept of shadenet house and cultivate alternate vegetable crops during the offseason.

Recognitions : This has been documented for the first time.

Message :

Cultivation of alternative crops during off season is more remunerative as the supply in the market is limited. Low cost shadenet house offer viable solution for growing off season vegetable to maximize farm income.

Seedling Production in Polyhouse

Personal Information

Name of the farmer	Shri Barun Kumar
Age	44 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	S/o Sri Krishnandan Singh Village - Dariyapur, Vikrampur P.O. - Sarobag, Block - Dharhara, District - Munger - 811214
Educational Background	Intermediate
Telephone number (Residence)	09204200545
Telephone number (Mobile)	08863941760
Email ID	-

Information on Innovation



Type of innovation : Seedling Production in Polyhouse

Specific group : Vegetable crops:

Existing practice : The farmer is involved in the cultivation of Rice / Wheat. Cultivation of vegetable and fruits was not in practice. In upper land Arhar and Mustard cultivation was in practice.

Details of innovation : Under the N.H.M. scheme Mr.Barun Kumar had taken a polyhouse. K.V.K. Munger gave the training before and after the installation of the Polyhouse. Now he grows all the cucurbitaceous vegetable seedlings, papaya seedlings and sells in the market. Planted several, mother plant of Mango, Lemon and Guava to produce grafted plants. At present he is cultivating bottle gourd in about 4 acres of land and Mango in 16 acres.

Usefulness of innovation : Supplying the seedlings of vegetables/fruits in the market. Commercial cultivation of cabbage, cauliflower, bottle gourd, cucumber, papaya in the local market has increased in the district.



Impact : Availability of seedlings of hybrids/improved varieties has increased in the district. This has helped in improving the production and net profit.

Adoption by others : Farmers of the village now follow him and all are motivated to cultivate vegetables and fruits.

Commercial gains : Earlier the earning of Shri Barun Kumar from cultivation was Rs. 50000/year. But after the adoption of the innovative technology he is gaining on an average Rs. 600000/ year

Scope for commercialization : There is a good scope for commercialization of the intervention.

Message :

Before adopting any technology farmers must also contact the nearest K.V.K., for training, exposure visits, literature this helps the farmers to improve their knowledge on latest developments so as to get the benefit from such developments.

Mulching in Elephant Foot Yam

Personal Information

Name of the farmer	Shri Sukumar Bag
Age	52 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Vill.- Balidanga, P.O.- Khanpur, Block- Dhaniakhali, P.S.- Gurap, Dist.- Hooghly - 712308, West Bengal
Educational Background	8 th Pass
Telephone number (Residence)	-
Telephone number (Mobile)	09475046430
Email ID	-

Information on Innovation



Type of innovation : Mulching in Elephant Foot Yam

Specific group : Vegetable crops: Elephant Foot Yam

Existing practice : Elephant foot yam is generally cultivated as a solo crop in the district of Hooghly. Tuber is planted in small pits made in the prepared land without mulching. Therefore water requirement and weed infestation in the field remain high. No green manuring or cover crops are cultivated. Yield of the crop is not satisfactory. Due to high water requirement and cost of cultivation becomes higher and thereby farmers get lower profit.

Details of innovation : At first the land is prepared through cultivation and leveling. Then lines are made (Rows) at a distance of 3 feet. Paddy straw is spread over the marked lines which actually act as underground mulching to conserve soil moisture and add organic matter to soil. This straw also helps to keep the soil more porous which facilitate tuber growth. Then tuber of elephant foot yam weighing around 400-500g is planted over the straw at a distance of 2.5 feet. Before planting seed tubers are treated with *Trichoderma viridi* @ 4g/l. After planting tubers are covered with top soil from both sides of the line mixing with organic manure @ 25q/ha. Thus ridges are made.



Dhaincha (*Sesbania* spp) seeds are broadcast in between the rows which act as green manuring and cover crop. After 45-50 days of sowing dhaincha plants are cut and spread at sides of the ridges of elephant foot yam. This adds nitrogen and organic manure to soil, helps to reduce weed population in the field. After 60 days of planting top dressing is done with inorganic fertilizers @ 600 kg 20:20:0:13 compound fertilizer and 300 kg MOP per ha. Then entire field is covered with straw which is easily available to the farmers. This straw helps to conserve soil moisture, reduce weed growth and ultimately add organic matter due to rotting during crop season of elephant foot yam. Two successive top dressings are made with urea @ 60kg and MOP 50 kg per ha at an interval of 30 days.

Usefulness of innovation : This innovation is very effective in several aspects in terms of reduced water requirement, labour requirement, fertilizer requirement and to the cost of cultivation. Less water is required due to water conservation both by underground and above ground mulching. Less fertilizer is required due to addition of organic matter from straw and Dhaincha and nitrogen from Dhaincha. Less labour is required due to less infestation of weeds. By this practice soil health is also maintained. Net profit is increased by Rs. 35,000-45,000 per ha than existing practice.

Impact : By this practice farmers get higher returns. They are now financially sound. The problem of disposal of paddy straw is now minimized and it is now utilized for crop production.

Adoption by others : Farmers are adopting this practice for elephant footyam production. Being less labour intensive and cost effective more farmers are interested to adopt this practice. At present about 20 farmers are producing elephant foot yam with this technology.

Commercial gains : By this practice cost of production of elephant foot yam is reduced upto 15-20% and yield is increased by 15-16%. Net profit is increased by Rs. 35,000-45,000 per ha than existing practice. B:C ratio is increased from 2.62 to 3.15.

Scope for commercialization : There is wide scope for commercialization of the innovation as elephant foot yam is a cash crop and its cultivation is increasing in the district. Further the practice involves less labour and lower cost of cultivation.

Message :

Farmers are motivated to grow elephant footyam by using this technique for higher return, less cost, better soil health management and for better utilization of byproducts of paddy.

Potato Planter

Personal Information

Name of the farmer	Shri Dhawale Ramdas Bhanudas
Age	48 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	A/P:- Bhawadi (Ranmala), Tal:- Ambegaon, Dist.: Pune - 410512
Educational Background	9 th Std.
Telephone number (Residence)	-
Telephone number (Mobile)	09822641497
Email ID	gmnkvk@rediffmail.com

Information on Innovation



Type of innovation : Potato Planter

Specific group : Vegetable crops: Potato

Existing practice : Existing practice of potato planting is manual with the help of bullock-drawn plough. The bullock drawn plough opens furrows at 45 cm distance and potato tubers are planted in the furrows by labour. About 2 bullocks/day and 45 man days are required for planting 1 ha. Area. The cost incurred for labour wages and bullock is about Rs. 11300 per ha. The time required for planting is more. For planting 1 ha, land 10 hours are required with 20 labours and 2 pairs of bullocks. The labour and bullock availability during peak period of plantation is very critical. The wage rates are also high leading to increased cost of cultivation.

Details of innovation : Mr. Dhawale has visited several agricultural exhibitions few years back. He has observed the mechanization in agriculture in those exhibitions. He came across deferent potato planting machines. Those were very much sophisticated and were expensive. After coming back he has tried to fabricate a potato planter in his field. He has developed a tractor drawn potato planting machine. The machine is able to plant 1 ha land in 5 hours at a cost of Rs 3200. Thus during acute shortage of labour the machine can perform planting of potato within short



period of time. He spent Rs. 26000 for developing the machine with the help of locally available tools and implements.

Usefulness of innovation : There is 4000 ha area under potato cultivation in Bhavadi and surrounding villages. The potato is being taken as rainfed crop in Kharif season. No additional irrigation is required. In traditional potato planting, the peak period of potato plantation is, one week after onset of monsoon. During this 2 to 3 week period all the farmers go for potato plantation. Acute shortage of labours and bullocks lead to frustration farmers. The wage rates also get to increased leading to increased cost of cultivation. The newly developed potato planter has been proved a pivot for all potato growers in the locality. Farmers of the village take the potato planter machine on hire basis at the rate of Rs. 1500 per ha. The machine is available on time, so that farmers are now able to perform potato plantation within stipulated period of time at less cost. Farmers are able to save about Rs. 9000 on potato sowing / ha. Mr. Dhawale has offered the design of the machine to fellow farmers at free of cost.

Impact : Potato planter machine requires less time (5 hrs) for planting 1 ha area as compared to traditional method. The machine is able to do plantation of 2 ha in one day. Farmers were in difficult situation due to non-availability of labour on time. There is no alternative source of irrigation. Hence planting is to be performed within 2 to 3 weeks of onset of monsoon rains. There are about 35 nos. of potato planter machines in the locality; About 90% potato plantation is now being done by this machine.

Adoption by others : Presently 12 nos. of farmers have manufactured the machines with the help of the design. Also few firms have also developed such machines and made available for farmers. Thus innovation of low cost potato planter machine has led to increased area under potato and saving of cost incurred on potato plantation.

Commercial gains : Mr Dhawale has 8 ha. of agriculture land. Every year he was able to grow potato plantation on 3 ha area only. The cost over wages on potato plantation was Rs. 11300/ha. With the help of this machine the farmer is able to perform potato plantation on 6 ha. area, at a cost of Rs. 3200/ha. Thus farmer is now able to obtain more income from potato plantation. Few private companies started manufacturing potato planting machines.

Scope for commercialization : In rainfed *Kharif* potato belt, there is always acute shortage of labours during peak period of plantation. The innovation of potato planter is unique example of mechanization in agriculture. Hence there is huge scope for commercialization of this innovation.

Recognitions : Daily news paper AGROWON has published the success story of potato planting machine; The Department of Agriculture Maharashtra Government has taken notice of his innovation and awarded “**Krishi Nishtha**” award; KVK Narayangaon made him a member of Scientific Advisory committee.

Documentation : The innovation was documented by KVK Narayangaon and sent for nomination to CITA award 2012-13.

Message :

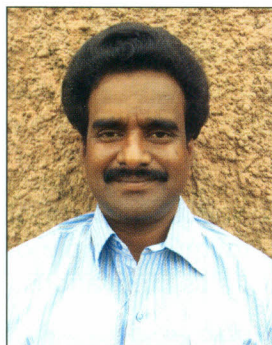
Farmers should go for using potato planter machine as it is labour saving and helps to minimize cost of cultivation.

Seedling Planter

Personal Information

Name of the farmer	Shri Bh. R. Viswanadha Raju
Age	46 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Bh. R. Viswanadha Raju 4 Plot no 72, Dream land Colony, Shadnagar, Farooqnagar Mandal, Mahabubnagar Dist, Telangana - 509216
Educational Background	SSC, ITI Fitter
Telephone number (Residence)	-
Telephone number (Mobile)	+91-9440457221
Email ID	rajubrv306@gmail.com

Information on Innovation



Type of innovation : Seedling Planter

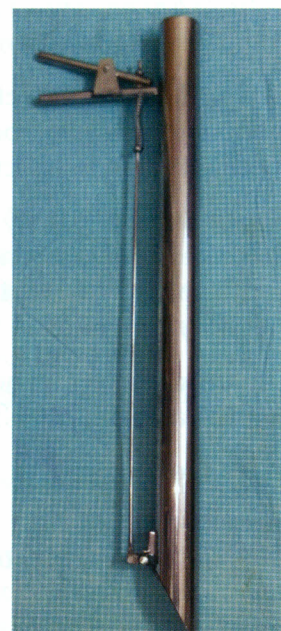
Specific group : Vegetable and Flower crops: Seedlings

Existing practice : Planting of seedlings manually which is labour intensive and expensive.

Details of innovation : Quick planter-for easy and quick planting of seedlings even on mulch sheet

Specification:

- Tool completely made of stainless steel material
- **Length:** 3 feet
- **Diameter:** 2 Inches
- **Parts:** handle, clutch, spring, connecting rod and mouth end.



Seedling planter



The seedlings are loaded in the stainless steel (SS) Chamber at the top and the clutch is released to make a hole on the mulch sheet on raised bed to plant the seedling directly on the bed. The cut poly mulch piece is collected in the chamber which are discarded at a place. This prevents the pollution of soil.

Usefulness of innovation :

- Reduce labour cost as it requires only 3 persons to plant in an area of 1 ha.
- Reduces soil pollution caused by mulch sheet when done traditionally.
- Controls weed growth as there will be no exposure of soil even around the plant seedling

Impact :

- Increase in net income due to reduction of labour costs.
- Reduction of soil pollution
- Weed control in mulch fields

Adoption by others : Adopted by many farmers in and around district and felt happy due to reduction in work load

Commercial gains : Reduction of labour costs per day per ha (approximately 2500 no of seedlings) from Rs 6000 (30 no of labourers x Rs 200 per labour) to Rs 600 (3 no of labours x Rs 200 per labour)

Scope for commercialization : Requirement of a minimum of 10000 quick planters per district with an average of 1000 villages (10 quick planters per each village)

Recognitions : The innovation can be seen on youtube @http://youtu.be/ggku_4vvt5.

Message :

Shortage of manpower can be overcome, initial investment can be reduced, perfect plantation can be done with less mortality of seedlings, because of stainless steel body it will work for a long period of time.

Garlic Dibbler

Personal Information

Name of the farmer	Shri Madhaorao Marshetwar
Age	43 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Ravi Madhaorao Marshetwar, Indira Chowk, Shukrawar Peth, Washim Dist. Washim, Maharashtra State - 445 505
Educational Background	B.E. Civil Engg.
Telephone number (Residence)	07252-232705
Telephone number (Mobile)	9823748863
Email ID	-

Information on Innovation



Type of innovation : Garlic Dibbler

Specific group : Garlic-spice crop:

Existing practice : Traditionally farmers are sowing garlic by manual method with the help of labour which is labour intensive and costly method, also by seed drill in few cases where the area is more. In both the cases the spacing, seed rate is not maintained as per recommendation which leads to low yield and income.

Details of innovation : Considering the importance of crop Mr. Ravi Marshetwar has taken the initiative to cultivate garlic for which he gathered more than 70 garlic cloves for group approach under the technical back stopping of Krishi Vigyan Kendra, Karda. He arranged around 40 exposure visits/ study tour for farmers on his own expenditure as part of social responsibility for adoption of new technologies. Under the improved package of practices in garlic crop even after adopting all the available means and methods it is very difficult to maintain its plant population. He has fabricated a low cost garlic dibbler to ensure uniform spacing.



Usefulness of innovation : Garlic dibbler is made up off wooden material hence it is light to handle. It helps to maintain the plant to plant and row to row spacing of 10x10cm. At once it helps to plant 100 garlic seed (bulbets) per square meter. During its operation only two women make 100holes at right places ahead followed by sowing of single seed in each hole created by the dibbler. In this way this dibbler saves the labour, time and money and also maintains the plant population at right spacing. Hence it is well acceptable, economical and user friendly.

Impact : As garlic dibbler is farmer friendly implement with low cost of production, it is easily acceptable to other farmers, Now a days in Washim district garlic/ turmeric and onion cultivation is mostly practiced in cluster approach for easy marketing and storage.

Adoption by others : Mostly garlic cultivation is undertaken in group approach and this farmer has the encouraged use of garlic dibbler for planting as a result of which in first year 70 farmers have used this implement.

Commercial gains : This implement is made up of wooden material and requires very less amount to fabricate.

Scope for commercialization : Under NHM, ATMA and KVK Front Line Demonstration this implement can be supplied to farmer as critical input.

Recognitions :

- Central Institute of Post Harvest Engineering and Technology (CIPHET) has honoured him as innovative farmer during Oct. 2012 at Ludhiana.
- From Washim District Mr. Marshetwar represented KVK and participated in State Level Innovative Farmers Meet organized by Dr. Panajbrao Dehsmukh Krishi Vidyapeeth, Akola.

Documentation: Yes, in local newspapers.

Message :

Dibbling of garlic is done manually which requires more time and labour however this garlic dibbler helps to plant 100 garlic seed (bulbets)/m² by maintaining proper spacing.

Organic Mulching in Vegetables

Personal Information

Name of the farmer	Shri Anath Bandhu Mahato
Age	37 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Village: Rahamda, P.O.- Kudlung, Block: Hura, Dist: Purulia, West Bengal, Pin: 723148
Educational Background	10 th Passed
Telephone number (Residence)	-
Telephone number (Mobile)	+91 8967822864
Email ID	-

Information on Innovation



Type of innovation : Palas leaves (*Butea monosperma*) as mulching in *Colocasia* plot

Specific group : Tuber crop: *Colocasia* sp.

Existing practice : Farmers do not use any mulch in *Colocasia* crop.

Details of innovation : The farmer cultivates tubers of *Colocasia* in his homestead land during pre-monsoon season. After planting, he collects *Palas* leaves (*Butea monosperma*) from the forest area adjacent to the village and spread them over the *Colocasia* plot so that, soil of the plot is not visible. The *Palas* leaves act as mulch over the soil and conserve moisture in the soil as well as do not allow soil to become hot. The *Palas* leaves decompose easily within one month during monsoon rain. The *Palas* leaves at early stage provide mulching effect by conserving moisture and suppress weed growth. Later on, after decomposition provide sufficient organic manure to the soil which enhance growth of the *Colocasia*. After one month of planting, earthing up operation is carried out and the farmer get weed free plot without application of any additional nutrient in organic or inorganic form. The farmer is practicing this intervention for last twelve years.



Usefulness of innovation : The intervention helps the farmers to minimise the cost of weeding and improving the organic nutrient status of the soil due to the decomposition of organic mulch.

Impact : In the drought prone red and lateritic soil, *Colocasia* is a popular crop for growing in homestead land. The use of *Palas* leaves as mulching material in *Colocasia* conserve moisture of the plot as well as suppress weed growth. The success of the innovative technology has been disseminated over around 12 villages adjoining “*Rakab Jungle*” area under three blocks namely Hura, Puncha, Purulia-I of Purulia District where *Palas* leaves are available.

Adoption by others : Now-a-days, some farmers are trying to grow *Palas* where *Palas* leaves are not available to practice this innovative intervention.

Commercial gains : This practice is totally organic in nature because farmers are not applying any additional fertilizer, weedicide etc. Ultimate gain is that they are reducing the production cost and getting more market value for the organically produced colocasia.

Scope for commercialization : The forest cover of Purulia is around 30% and in this forest area *Palas* is a common plant. So, farmers can collect *Palas* leave easily from their adjacent forest area and use it as a mulching agent.

Message :

The Palas leaves at early stage provide mulching effect by conserving moisture and suppress weed growth. Later on, after decomposition provides sufficient organic matter to the soil which enhance growth of the Colocasia and finally it will increase the microbial activity in the land by the addition of organic matter into the soil.

Improving Productivity in Mushroom

Personal Information

Name of the farmer	Shri Suwendu Sekhar Das
Age	36 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	Village –Sinthia, Post- Golghat, P.S. –Panskura, District – Purba Medinipur, State – West Bengal - 721139
Educational Background	B.A.
Telephone number (Residence)	-
Telephone number (Mobile)	+918609910696/9735373694
Email ID	-

Information on Innovation



Type of innovation : Improving Productivity in Mushroom

Specific group : Vegetable crops: Mushrooms

Existing practice : Cultivation of Oyster mushroom on chaffed & wet paddy straw is normally practiced by the farmers. The entire mass is packed in perforated transparent poly bag. 1st harvest is done at about 25 days, 2nd and last harvest after 15 days interval from 1st harvest. Total Production from 2 kg straw -2.0 kg fresh mushrooms. Very less quantity from 3rd harvest. After 3rd harvest the mass is thrown in compost pit.

Details of innovation : Shri Das innovated a new method by which he used to get at least 2 or more harvests from the rejected mass of Mushroom mycelium. He made a vertical hole on the top of the mass so that it can hold 150 ml of liquid. Then he poured a cup of fresh cow dung solution (C.D. : Water = 1:3) or 10% molasses solution or 2% urea solution. By this method he got 2.75 to 3 kg fresh mushroom from a mass of 2 kg straw instead of normal 2 kg/straw mass.

Usefulness of innovation : After 2nd harvest from paddy straw mass the required nutrition for mushroom growth goes down. Adding the solution of fresh cow dung / molasses solution or urea solution provides required nutrition for the mushroom growth.



Impact : Mushroom production is being popularized in the district as well as in the state of West Bengal day by day. The main constraint is non availability of good quality spawn in time. Farmers have to depend up on State Agricultural University and very few private laboratories. By adopting the new innovation requirement of spawn has reduced. Thus the technology is being popularized in the area.

Adoption by others : This method is being adopted by several mushroom growers in the Block.

Commercial gains : By adopting the new innovation the farmer gets 2 kg extra mushroom from a single mass worth Rs.-100/-. By cultivating 50 bag units of mushroom he is earns an additional income of Rs. 5000 over traditional method.

Scope for commercialization : This technology may be disseminated to the farmers of the district as well as the state through training and demonstration.

Message :

Mushroom cultivation is very much profitable and requires less finance and labour. This method may be adopted for additional family income and nutritional security.

Drumstick Powder

Personal Information

Name of the farmer	Shri Dipenkumar Mukundbhai Shah
Age	40 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	879, Shah's Street, Dist. & Ta- Anand, Post – Kunjrao – 388 335 Gujarat
Educational Background	B.Com
Telephone number (Residence)	(02744) 256046
Telephone number (Mobile)	+91 97277 27077
Email ID	dipcy73@gmail.com

Information on Innovation



Type of innovation : Drumstick (*Moringa Oleifera*) Powder

Specific group : Vegetable crops: Drumstick

Existing practice : Drumstick is mostly consumed in fresh form and value added products from drumsticks are very limited.

Details of innovation : Organic farming of drumstick was practiced with drip irrigation that fetches high quality output. Shri Shah is involved in drying of leaves and pods and making powder from them, He also separates seeds from pods during drying process. After separating of seeds he sieves the seeds. Then after he crushes the seeds and takes out oil from it with the help of oil press machine.

Usefulness of innovation : At the time of glut in the market for drumstick, he makes powder of it and also gets oil from its seeds. It increases our income. He does pruning every year at that time he plucks the leaves to dry them. Same time bark is also peeled out to make its powder. In future it can be expanded to a medium scale unit. There is vast potential for these products.



Impact : In May 2012 at Limkheda, Gujarat in Krishi Mohotsav, Gujarat Ex. C. M. Shri Narendra Modi visited their stall. He saw various products of moringa with great interest.

Adoption by others : The farmers have started doing value-addition of moringa. They also have planted moringa in other farms. The whole moringa community has been developed to do so. State government is also encouraging them to do so.

Commercial gains : The farmers were wasting the valuable leaves and branches at the time of pruning. They didn't know about its nutrient values, now a days pharmacy companies are offering good price for dry leaves.

Scope for commercialization : The Farmer has signed MOU with Gujarat Govt. in 2013 during the Vibrant Gujarat with the name of Pushpam Agro Exports. He plans to setup his own unit to produce value added products from moringa.

Recognitions : Best Atma farmer award (2010-11); Best farmer award in Krishi Mohotsav (2011); Award of "KrushiRushi" by Government of Gujarat at Krishi Mahotsav, 2012; Best practices in agriculture by Government in Agritalk Asia at Gandhinagar (2013) .

Message :

The biomass produced by most of the plants possess useful traits. We need to harness them by developing value added products.

Tool for Making Holes in Plastic Mulch Sheet

Personal Information

Name of the farmer	Shri R. Murugesan
Age	43 Years
Gender	Male
Complete Postal Address with village, mandal, district, state name and pin code	S/O Raji Poonaiyanur Venkatasamudram Post Pappireddipatti Tk.
Educational Background	Primary school
Telephone number (Residence)	-
Telephone number (Mobile)	08124267381
Email ID	kvkdpri@tnau.ac.in

Information on Innovation



Type of innovation : Tool for Making Holes in Plastic Mulch Sheet

Specific group : Watermelon, muskmelon, tuberose, brinjal and tomato

Existing practice : Plastic mulching is being used in Dharmapuri district for melons (watermelon, muskmelon), tuberose, brinjal and tomato. In case of melons more than 90 percent of the area in this district is under plastic mulching. Area of tuberose under plastic mulching is about 20 percent of the total area. In brinjal and tomato the practice of plastic mulching is just picking up. Plastic mulching is mainly adapted for reducing the weed management cost and also for irrigation water saving.

Plastic mulch of 30 - 40 micron thickness and 4 feet width is used commonly. After spreading plastic mulching sheet, for making holes farmers are using 6 cm diameter MS pipe welded to a one metre long MS rod of thickness 8 mm as a handle. Farmers used to take hot charcoal in bucket, two of such hole makers kept in the bucket. They use one for making holes in the sheet at desired spacing, when the hole makers cool, they can use the other.

Details of innovation : Problems encountered in the existing practice:

In case of melons 11000 holes, for Tuberose 50000 holes per hectare should be made which is laborious. The regular practice of carrying the bucket with the hole maker is time consuming and causes drudgery. To overcome the above problem the farmer has designed the hole maker which can be carried alone based on conventional iron box in which charcoal is used for heating.

Specifications :

Details	Existing hole maker	Hole maker designed by the farmer
Line diagram of the hole maker	<p>Hollow cylinder</p>	<p>Closed with GI sheet</p>
Principle	Heating by hot charcoal carried in a bucket from outside.	Acts as the conventional iron box with charcoal. The hot charcoal filled inside the cylinder is kept hot by entry of air while oscillating the hole maker.
Length of the handle	1 metre	1 metre
Cylinder length(cm)	15.0	25.0
Cylinder diameter (cm)	6.0	6.0
Holes in cylinder	No holes	Holes of one inch dia
Hollow / closed	Hollow	Closed with GI sheet leaving one inch from the bottom of the cylinder.
Process of using	After spreading plastic mulching sheet, for making holes two of such hole makers are kept in bucket with hot charcoal. One is used for making holes in the sheet at desired spacing, when it cools down, they will use the other.	The hot charcoal is taken in the hole maker itself. When it is felt that the heat is reduced, the tool can be oscillated to and fro, the air that enters the cylinder through the holes blows up the charcoal and increases the heat. The drudgery involved in carrying the bucket with hot charcoal for making the holes is avoided.
Cost	Rs. 200 / piece	Rs. 220 / piece