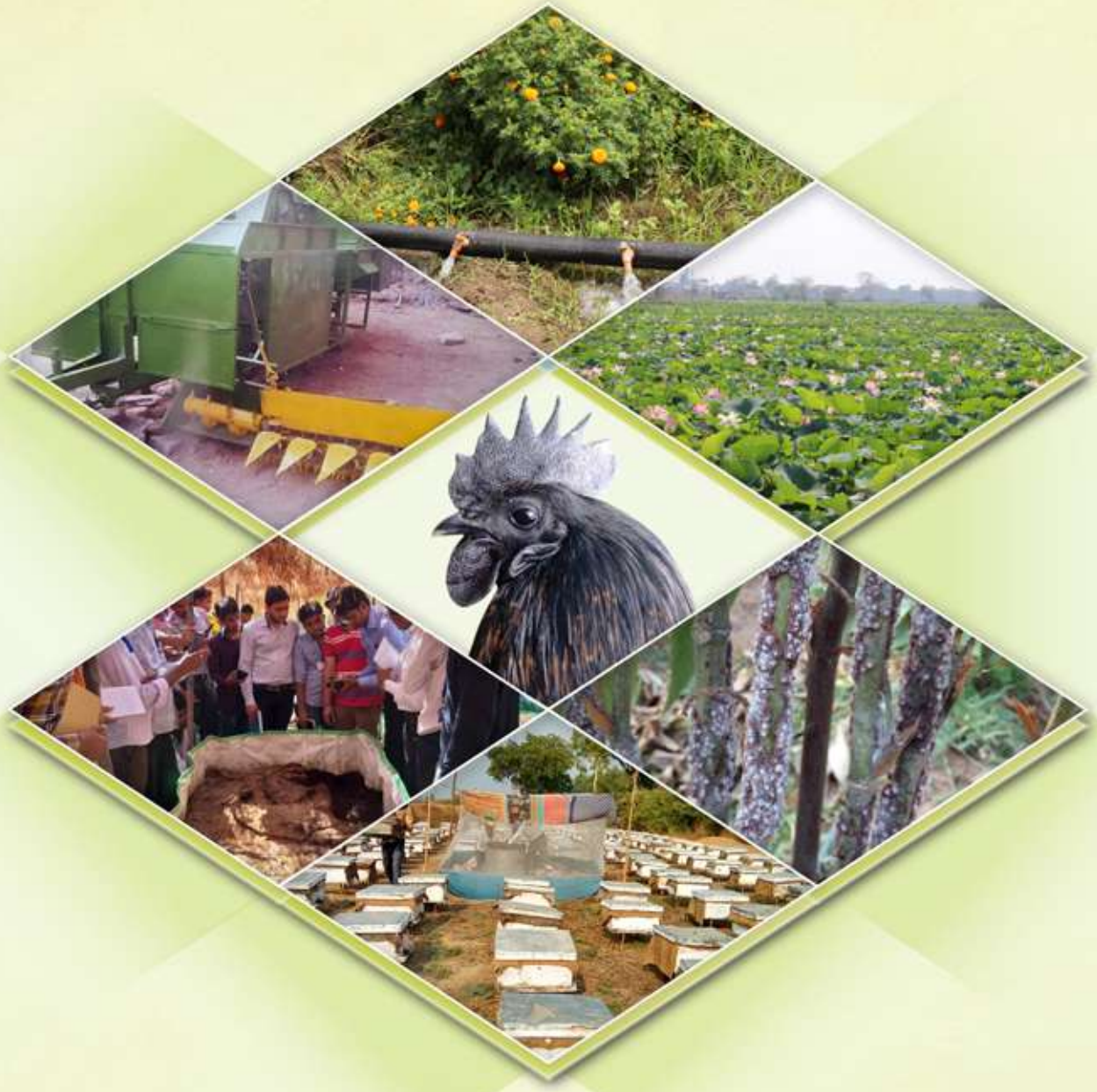
FARM INNOVATORS FOR REINVENTING AGRICULTURE



भाकृअनुप

ICAR

भाकृअनुप-कृषि प्रोद्यौगिकी अनुप्रयोग अनुसंधान संस्थान

ICAR- Agricultural Technology Aplication Research Institute (ATARI)

कृषि प्रसार विभाग | Division of Agricultural Extension

जबलपुर, मध्य प्रदेश- 482 004 | Jabalpur, Madhya Pradesh - 482 004

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Guidance

Dr. A.K. Singh
Deputy Director General (AE)
ICAR, New Delhi

Compilation and Editing

Dr. S.R.K. Singh, Principal Scientist, ICAR-ATARI, Jabalpur
Dr. Moni Thomas, Professor, JNKVV, Jabalpur
Dr. A.A. Raut, Scientist, ICAR-ATARI, Jabalpur
Dr. Anupam Mishra, Director, ICAR-ATARI, Jabalpur
Dr. A.K. Singh, Deputy Director General (AE), ICAR, New Delhi

Technical Assistance

Neha Sharma, Alok Suryawanshi, Anita Deshmukh, Varsha Shrivastava

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भाकृअनुप
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डा. अशोक कुमार सिंह
उपमहानिदेशक (कृषि प्रसार)
Dr. A.K. Singh
Deputy Director General (Agricultural Extension)

भारतीय कृषि अनुसंधान परिषद्
कृषि अनुसंधान भवन–1, पूसा, नई दिल्ली 110 012
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
Krishi Anusandhan Bhawan, Pusa, New Delhi – 110 012
Ph.:91-11-25843277 (O), Fax : 91-11-25842968
E-mail: aksicar@gmail.com

FOREWORD

India became self-sufficient in food grain production due to continuous technological interventions by the scientists, effortless work by the millions of farmers and supportive policy guidelines by the governments. But still lot of issues of agriculture and allied sectors are waiting for the proper solution. In such situation, farm innovations are playing deciding role for moving in the right direction to seek solution for the smallholders by the scientific fraternity on the sustainable basis. The challenges faced by the agricultural sector may be resolved to some extent by creating value chains and agri-preneurship among the farmers.

Innovation is an idea or practice originally developed or when a person first becomes aware of it. In other words, using something old in new ways or applying something new to successfully produce desired social and economic outcome is an innovation.

Innovation, valuable ideas and techniques generated by the farming community largely go unnoticed due to lack of proper documentation and its wider dissemination. This publication attempts to widely share such innovative technologies, methodologies and recognizes the scientific temperament behind such grassroots level innovations.

This document depicts the efforts of farm innovators in the areas of intensive agriculture, farm machinery, horticulture, organic farming, integrated farming system, crop diversification, poultry farming, income generating enterprises and value addition.

The farmers are gratefully acknowledged developing innovations overtime and wholeheartedly sharing them for its inclusion in the document.

(A. K. SINGH)

Dated : 30.08.2019

PREFACE

Bringing innovation to agriculture not only underpins the creation of new opportunities for farm innovators but also new market. Infect, a substantial part of our agricultural growth must come through application of innovative technology and practice at different segments of agriculture.

Innovations in various production, processes, markets and associated activities are key sources of agricultural growth and promotion of its inclusiveness. This embodies application of existing (including traditional) and new knowledge and technologies, with an objective of addressing the production constraints and harnessing growth opportunities. The pace of innovations is likely to accelerate by enhancing more investment in technology systems, human capacity and infrastructure.

The agricultural scientists have quest for evolving modern technologies for transforming Indian agriculture. In present time farmers are not only beneficiaries of disseminated technologies but they are able to invent or modify/refine the technology according to their farming situations. These innovations have emerged out of farmers vast experiences and wisdom-based on their analysis of their own micro-level farming situations. It's high time to recognize bottom-up innovations and of equal partnership of farmers in agricultural research and development. Realizing this, there is a greater need to identify, recognize and promote those farmers who are actually grass-root innovators of agricultural technologies..

This publication **"Farm Innovators for Reinventing Agriculture"** is based on farmer's innovation in intensive agriculture, farm machinery, horticulture, organic farming, integrated farming system, crop diversification, poultry farming, income generating enterprises and value addition. This publication will help to motivate all farming community especially rural youth for making profitable and additional income generation.

Authors

CONTENTS

Conservation of Traditional Varieties of Suitable Crop for Rainfed Agriculture

Name : **Padma Shri Babulal Dahiya**
Village : Pithorabad
Block : Uchehra
District : Satna (M.P.)
Mobile No. : 9981162564

Profile : Age : 76 year, Education level : BA, Land holding : 1.62 ha

Problem addressed : Crop varieties/ landraces resilient to extreme climatic events, rising temperature and drought

Description of innovation : Has conserved more than 203 varieties of rice, 4 varieties of maize, 12 varieties of millets, 34 varieties of vegetables and having a crop and seed museum at his farm in Satna, motivating the farmers to conserve own seeds.

Source of information : Krishi Vigyan Kendra, Satna

Potential : Together with other organizations he has built a movement " save our Bio-Diversity Campaign- from farmers to consumers, policy makers to media and scientists to students

Awards National Level :
Padma Shri Award 2018
Plant Genome Savior 2012
India Biodiversity Awards 2018
Krishi Vasant Award 2013

Awards State Level :
- Rashtra Rishi Nanaji Deshmukh Innovative farmer award 2013
- Centre for Environment Education
- *Jaiv Vividhta Paryavaran Sanrakshan Samman- GVPS*
- *Saifu Samman*
- *Pratap Samman*
- *Krishi Sadhna Samman*

Pigeonpea Cultivation through System of Pigeonpea Intensification (SPI)

Name : **Shri Gulab Singh**
Village : Kathothiya
District : Shahdol (M.P.)
Mobile No. : 07869493388

Profile : Age : 52 year , Education level : 11th, Land holding : 4.8 ha

Problem addressed : Low income of farmers due to long duration mono crop

Description of innovation : Inter cropping of vegetables such as coriander, radish and pigeon pea (Variety-TJT-501) planted through SPI. Chickpea (Variety JG-14) a heat tolerant, recommended for late sown condition was taken as second crop

Practical utility : Judicious selection of method of planting and varietal selection of short duration of pigeon pea with intercropping of vegetables leds to higher number of crop plants per unit area. It gives additional yield income/unit area than sole cropping and also serves as an insurance against failure of crops in abnormal year. Further it reduces soil run off and controls weeds. Inter cropping system utilizes resources efficiently. Chickpea was also taken as second crop after harvest of pigeonpea which also enhances the income of farmer.

Source of information : Krishi Vigyan Kendra, Shahdol

Economics of innovation : Net income earn was Rs. 75600 per ha on the cost of cultivation of Rs. 26650 from inter cropping vegetable in pigeonpea. B:C ratio turns to 3.84.

Potential : Now a day's 1190 farmers covering 475 ha of Shahdol District have adopted this system and engaged in earning income through intercropping of vegetables.

Protected Cultivation with Micro Irrigation for Additional Income

Name : **Shri Bodh Ram Kanwar**
Village : Hardibazar
District : Korba (C.G.)
Mobile No. : 9425540588

Profile : Age : 81 year, Education level : Post graduate , Land holding : 3.2 ha

Problem addressed : Rainfed farming system, Soil- light soil (Sandy loam). Single cropping system- Paddy, Village Hardi bazzar is a coal mine area, so on that area water and air pollution is the major problem and due to having coal mines it is very difficult to grow crops due to coal dust it chocks photosynthesis process of the plant.

Description of innovation : To solve such problem he started presicion farming of vegetable by adopting drip irrigation system under shade net house.

Practical utility : Drip irrigation saves upto 50% water and under shade net house plant were protected from coal dust.

Source of information : Krishi Vigyan Kendra, Korba, Horticultural Department, Korba

Economics of innovation : Vegetable production : (1ha) per season. Cost of cultivation – Rs. 63123, Return - Rs. 81877, B:C Ratio - 2.27, Crop production(7 acres)-Cost- Rs. 75000, Return - Rs. 78550, B:C Ratio -1.98

Potential : It is an inspiration of the local farmers, Number of farmers (10) adopting this technology. This technology is suitable for dryland and water deficit area.

Use of Low Cost Bottle Pheromone Trap for Eco-Friendly Pest Management

Name : **Shri Domar Dewangan**
Village : Bodra
District : Dhamtari (C.G.)
Mobile No. : 07354629522

Profile : Age : 32 year, Education level : 12th, Land holding : 4 ha

Problem addressed : Heavy infestation of Insect pests in Rice crop & high cost of insecticides required.

Description of innovation : Dhamtari district having Rice-Rice cropping pattern, due to which insect pest stress level is higher in crop. Farmers applied high levels of agrochemicals to manage the pests. Due to high level of insect pest infestation & high cost of pesticides farmers getting less profit and also it cause soil and water pollution.

Keeping this in mind KVK Dhamtari Invented low cost bottle pheromone trap. In this technique a simple plastic water bottle is used making a 1×3 inch windows near neck area. One lure for pest specific is hanged through the cap of the bottle. The air flow containing lure molecules attracts the moth. The moth trapped in the bottle and fall down at bottom of the bottle, we fill 2 inches of water to enhance the efficiency of the device.

Practical utility : The Bottle pheromone trap is useful for maximum number of borers for which the lures are available in market. The cost is 60-70% less than the conventional pheromone traps.

Source of information : Krishi Vigyan Kendra, Dhamtari

Economics of innovation : Bottle pheromone trap: Rs. 375/ha

Conventional pheromone trap: Rs. 1125 ha

Profitability: 200 %

: Farm Innovation by user group (Pond Vs Field condition):

S. N.	Particulars	Pond Condition	Field condition
1	Economics (Net monetory profit/ha)	Rs. 10000-20000	Rs. 80,000-90,000

System of Wheat Intensification to Enhance Productivity

Name : **Shri N.L. Bhati**
Village : Balagaon,
District : Harda (MP)
Mobile No. : 9926898983

Profile : Age : 48 year, Education level : 10th, Land holding: 3.2 ha

Problem addressed : Under soybean–wheat cropping he was receiving low yield from per unit area. Although he is small farmer so needs more production from small piece of land.

Description of innovation : The sowing of wheat was made 1x1 fit plant-row distance by dibbler. Breeder seed of wheat was used @ 20 kg/ha. Plant to plant and row to row distance was made by tagged rope. Due to large no. of tillers per hill crops yields more productivity from per unit area of land.

Practical utility : The wheat productivity was enhanced by 25 qt/ha and seed was reduced by 83.33 per cent /ha of Rs 4000/ha

Source of information : Krishi Vigyan Kendra-Harda given him initial information and backstopping to adopt this innovation.

Economics of innovation : He was reaped 75 quintal wheat/ha on the place of 50 quintal/ha earlier, so he received 50 per cent more yield/ha from same piece of the land and sold his produce @ 1550/qt of total worth Rs 75x1550=116250/-. He got net profit of (Rs. 116250-25500) =90750/ha. B:C ratio 4.56:1

Potential : This technology found very well for enhancing the productivity of wheat crop from small piece of the land. Marginal and small farmer's category was motivated with this technology and now 12 farmers are practicing this technology in Harda.

Pond with Zero Energy System

Name : **Shri Jitendra Patidar**
Village : Gopipur
District : Shajapur (M.P.)
Mobile No. : 9425936656

Profile : Age : 35 year, Education level : Graduation, Land holding : 15 ha

Problem addressed : Due to water scarcity for irrigation and lack of electricity for their farm, farmer develop the zero energy water management system under the guidance of KVK Scientist

Description of innovation : Storage tank with lining 2.5 crore liter for rabi season crop solar pump of 5 hp, Micro irrigation of 10 hectare in horticulture crop with help of solar pump, polythene over head tank and drip irrigation, I had made zero energy and zero human power water irrigation system with doesn't need electricity and human power.

Practical utility : It is the best way to conserve water for summer crop when traditional water sources are not able to fulfill crop water requirement and no need of electricity irrigation

Source of information : Krishi Vigyan Kendra, Shajapur

Economics of innovation : Farmers earn more than Rs 2,50,000 per ha for potato, onion and garlic crop in rabi crop due to improved water management and zero energy system and Rs 50,000 per ha for soybean crop.

Potential : More than 50 farmers adopted this technology in Shajapur district

Awards State level : ATMA, District award 2018-19

Tap Based Furrow Irrigation System

Name	:	**Shri Sitaram Chouhan**
Village	:	Mirzapur
Block	:	Indore
District	:	Indore (M. P.)

Profile : Age : 48 year, Education : 8th, Land holding : 2 ha.

Description of innovation : To make efficient use of available irrigation water, he started tap based furrow irrigation system instead of flood irrigation system. He prepared a system of irrigation by his own efforts for irrigating marigold and potato etc. He purchased some HDPE pipes and plastic taps. He fixed taps on the pipe on 24 inch interval and used it for irrigating these crops.

Practical utility : Tap irrigation system is very simple to make and use. Anybody can prepare himself with the additional cost of Taps (Rs. 20-30/Tap). After using this system he got a very good production of potato (180 q/ha) over the previous yield of potato (150 q/ha) and got good quality of crop. He got 22% increased yield of potato and also saved 35-40% of irrigation water. He saved time and labour also by using this method. He observed that this irrigation system also helped to prevent soil erosion.

Innovative Sugarcane Bud Chipper

Name : **Shri Roshan Lal Vishwakarma**
Village : Mekh
District : Narsinghpur (M.P.)
Mobile no : 9300724167

Profile : Age : 51 year, Education level : 11th, Land holding : 3.2 ha

Problem addressed : In sugarcane cultivation higher seed quantity use for sowing. No seed treatment through fungicide. Transportation of sugarcane seed is costly. Higher cost of cultivation due to huge quantity of seed.

Description of innovation : Manual and power operated sugarcane bud chipper

Practical utility : Sowing of sugarcane buds 7 qt. in place of 75-120 qt. Sugarcane set. Sugarcane bud seed treatment through fungicide/Bio-fertilizer. Remaining 90% seed material can be utilized for making Gur/Sugar. Reduced 30% cost of cultivation. Transportation of sugarcane seed easy and low cost

Source of information : He has got the training/attended seminars and krishi mela on sugarcane cultivation by the help of Krishi Vigyan Kendra, Narsinghpur.

Economics of innovation : Sugarcane sowing through bud B:C ratio 4.62
Sugarcane sowing through set B:C ratio 2.70

Potential : This innovation made by the farmer to the farmers and extension worker spread all over the India

Tractor Mounted Combine Harvester with Straw Maker

Name : **Shri Rajpal Singh Narwariya**
Village : Jamakhedi
Block : Garethi
District : Ashoknagar
Mobile number : 08103118384

Profile : Age : 41 year, Education level : Passed 12th Class , Land holding : 2 ha

Problem addressed : Lack of labour at harvesting time wages are high at that time . High cost of traditional combine harvester. Causes to build a new low cost tractor mounted machine.

Description of innovation : Shri Rajpal has developed a tractor mounted power take off (PTO) powered combine harvester, which also has the provision of collecting the straw. This machine is a low cost as compared to available alternatives and i.e traditional combine harvester can be used with a tractor of minimum 45 HP. One acre of land can be harvested in 1 hour with fuel consumption of 3-4 liter/hour. It has been found suitable for various crops like (wheat, soybean, sorghum and maize etc.).

Practical utility : Tractor mounted combine harvester with straw collector technology are widely adopted by local farming community. During the testing of machine at farmer's field farmers are widely satisfied with low cost, easy of operation and multipurpose machines.

Source of information : Krishi Vigyan Kendra, Ashoknagar (M.P.)

Economics of innovation : This machine used for threshing and harvesting of soybean , wheat gram which can harvest in 01 hour time with casting of Rs 750 acre only while manual casting for harvesting and threshing is Rs. 3000 acre. This machine also collect husk for animals about 15 quintals from one acre which is casting Rs 4500 acre. Cost/benefit ratio 4.0

Potential : Farmer are under patent process have new technology is not generated

Attachment of Ridge- Furrow System in Local Seed Drill

Name : **Shri Mansur Beg**
Village : Kuhanjapur
District : Sheopur (M.P.)
Mobile : 07354979655

Profile : Age : 36 year, Education level : 10th, Land holding : 5 ha

Problem addressed : Low yield due to poor germination, water logging in soybean and long dry spell of monsoon

Description of innovation : Farmer attached vertical plates (panza) on back tines of local seed drill to make ridge & furrow and seed germination on ridge by simple seed drill. Over all Rs 400 to 500 expenditure require to convert simple seed drill in to ridge furrow system.

Practical utility : Increases water and fertilizer-use efficiency, enhance in-situ moisture conservation, proper drainage and promote root development.

Source of information : IISR, Indore, Krishi Vigyan Kendra.

Economics of innovation : Gross return - Rs 49440, Net return – Rs.28723, B:C- 2.38

Potential : This technology now spread in 12600 ha land in the year 2017-18

Sugarcane Shredder Machine for Mulching & Composting

Name : **Shri Shankar Rao Chouhan**
Village : Andharwadi
District : Burhanpur (M.P.)
Mobile No. : 9425952398
Email : chouhankrishifarmandnursery@gmail.com

Profile : Age : 56 year, Education : 10th pass, Land holding : 4.5 ha

Description of innovation : Innovation through sugarcane shredder machine for natural mulching & composting (1st in the State)-Sugarcane shredder machine is one of the important machine for improving soil fertility & soil conservation. Through sugarcane shredder machine Shri chouhan promoted organic farming & conservation agriculture. They communicated to farmers "burn farm waste is harmful. There are so many farmers who burn sugarcane leaves and ultimately they loss soil fertility.

Practical utility : Innovation through Sugarcane Shredder Machine for natural mulching & composting replacing the traditional method of harvested sugar cane field. Through the intervention of sugar cane shredder machine Shri Chouhan educated sugar cane farmers not to burn the cane residue and leaves after harvesting. Shredder Machine cut the sugarcane leaf & convert into Mulching which conserve the moisture, suppress the weed growth and reduces the evaporation. This also improves the microbial activity in the soil which in turn improves the soil fertility and production.

Potential : Due to its practical utility, sugarcane farmers is adopting this machine and more than 2000 farmers benefited with this technology.

Modified Ventury System Developed for Fertigation

Name : **Shri Mukesh Kushwah**
Address : Ward No. 18 Shyam Nagar
Block : Begamganj
District : Raisen (M. P.)

Profile : Age : 36 year, Education : 12th, Land holding : 3.4 ha

Description of innovation : Initially he used to given fertilizers and pesticides through company made ventury system with drip irrigation in his vegetables, but he was not satisfied with his production as he was unable to discharge fertilization evenly in his field with his 1 HP motor having low pressure of water to the last point of his crops. For this he developed his own ventury system which was installed before pump set with local material which supplies fertilizer/ pesticides /biopesticides evenly with drip and sprinkler system.

Practical utility : Innovative ventury system is very simple to install and helpful in low HP motor and fertigation through Sprinkler system, by using this system fertilizer/Bio fertilizer supplied to crops/ vegetables with sucking control pressure and without control of water pressure in main pipe. Through this system fertilizers/bio pesticides/ bio fertilizers are distributed even through sprinkler system in equal amount throughout the field.

Economics of innovation : Farmers could able to install this device before pump set at a low cost of Rs 200. Which is very cheap against normal practice for fertigation. This also improves production by 25-30 % with proper fertigation. This system saves water, save money and conserve soil.

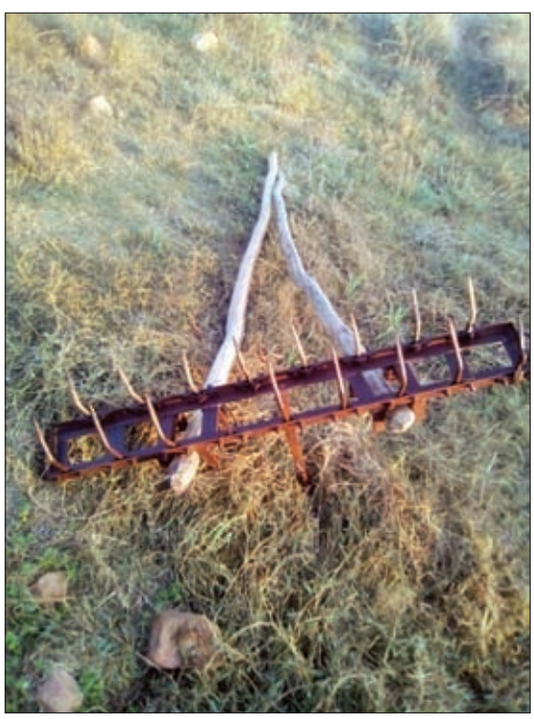
Ghana: Low Cost Implement for Interculture Operation

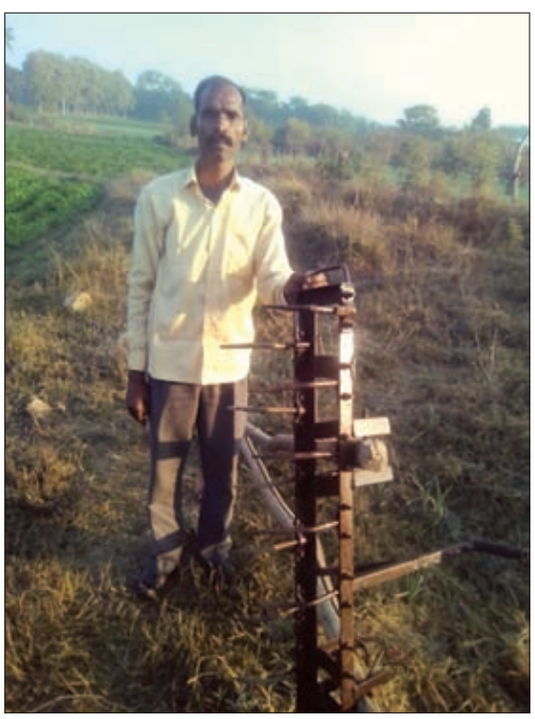
Name : **Shri Vijay Kushwaha**
Village : Mayarampur
District : Shivpuri (M.P.)
Mobile No. : 8435675348

Profile : Age : 45 year, Education : Graduation, Land holding : 2 ha

Description of innovation : Developed Ghhana implement had a finger shape sharp tine and filled in iron handle with 3.5 feet length and 1.5 feet width, which is manually, bullock and tractor operated. Intercultural operation in crops, thinning in dense crop as per utility and necessary of requiring by Ghaana implement.

Practical Utility : Innovative Ghaana implement is simple to operate and portable. This Ghaana could be able to create distance in row in between crop and control/clearing of weeds in standing condition up to 15-25 days. It requires less use of herbicides material for weed control and drudgery reduction. Many farmers attracted for this equipment and lot of demand able to sell such device cost of Rs. 2500-3000/-





Mandarin Grader

Name : **Shri Pradip Patidar**
Block : Neemuch
District : Neemuch (M.P.)
Mobile No. : 7987512380

Profile : Age : 35 year, Education : B.A., Land holding : 5 ha

Description of innovation : During grading, mandarin are sorted according to the fixed grade standard, taking quality factors like weight, size, colour, shape and degree of damage on fruits into consideration to make a homogenous lot. Handling large volume of the produce, this semi- automatic grading machine is used, wherein the fruits are passed down on a slow moving conveyor. This semi automatically grading is very efficient with respect to time, space and quantity and separated into 3 grades.

Practical utility : Innovative mandarin grader is simple to operate This mandarin grader could be able to grade 300-400 kg/hour. It requires 1 HP pulley attached single phase motor and fabricated simply by tin and iron rods. The first 1000 kg of produce sorted and packed pays for the capital outlay (the grader), after this each 1000 kg packed results in a return of an additional Rs. 257000.

Economics of innovation :

Before adopting the technology						
Crop	**Variety**	**Area (ha)**	**Yield (qtl.)**	**Gross cost (Rs.)**	**Gross income (Rs.)**	**Net income (Rs.)**
Mandarin	Nagpur	1.0 ha (277 plants)	277	100000	360100	260100
After adopting the technology						
Mandarin	Nagpur	1.0 ha (277 plants)	304	125000	Grade A – 182000/- Grade B – 243200/- Grade C – 61000/-	361200

Bund Maker with Fertilizer Drill

Name : **Shri Bala Ram Patidar**
Village : Sarangi
District : Jhabua (M.P.)
Mobile No. : 09977096087

Profile : Age : 59 year, Education level : 8th, Land holding : 4 ha

Problem addressed : Jhabua Hill Zone of Madhya Pradesh. Farmers from Petlawad and Thandla diverted to cash crop production and want to more production in horticulture crops.

Description of innovation : Shri Balaram Patidar designed a tractor operated bund maker with fertilizer drill to ridge formation for papaya, tomato, chilli cultivation. This consists two 6 feet long and 1.4 feet width iron plate. One end of each plate joined in "V" shape and fitted with a frame. A fertilizer drum with pully system attached with this system. When bund is formed, we can supply basal dose of fertilizer through fertilizer drill system in the centre of ridge. The distance between bund and quantity of fertilizer is adjustable. It cost only Rs. 8000/-

Practical utility : Due to high demand and return, papaya, tomato, chilli are cultivating by using ridge formation. In traditional methods it require more time & labour. Thus it saves time and labour and easy in operating. The distance between ridge can be increase and decrease through adjust the distance between plates. The dose of fertilizer also can be adjustable.

Source of information : Krishi Vigyan Kendra, Jhabua

Economics of innovation : Total cost is Rs 8000 after using this technology, the yield increased 25-40 per cent. Income with the area of intervention 0.2 to 1.5 ha per household.

Potential : Due to high demand and return from papaya, tomato, chilli are cultivating by using ridge formation by farmers. Around 150.0 ha area and 350 farmers covered by Shri Balaram Patidar innovation.

Tube Well Motor Winding

Name : **Shri Ram Kumar Kushwaha**
Village : Kanti
District : Tikamgarh (M.P.)
Mobile No. : 9926860876

Profile : Age : 42 year, Education: 12th, Land holding : 1.5 ha

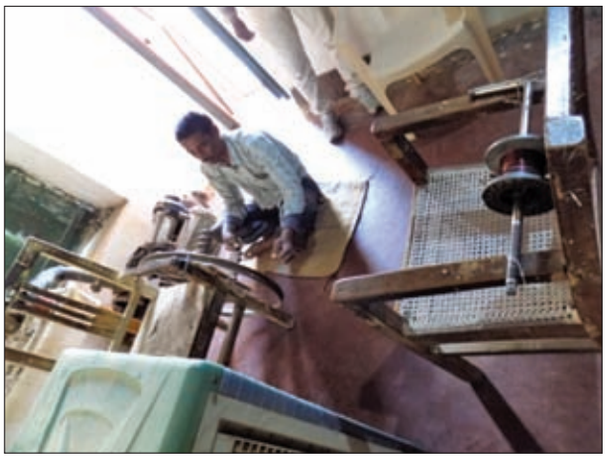
Problem addressed : Agro-ecological farming situation - irrigated Blackgram – wheat. Tube well motor winders are 25 km from village. Winding required 4-5 days which hampers irrigation of the farmer's fields and affects crop condition too. Availability of local motor winding facilities helps farmers.

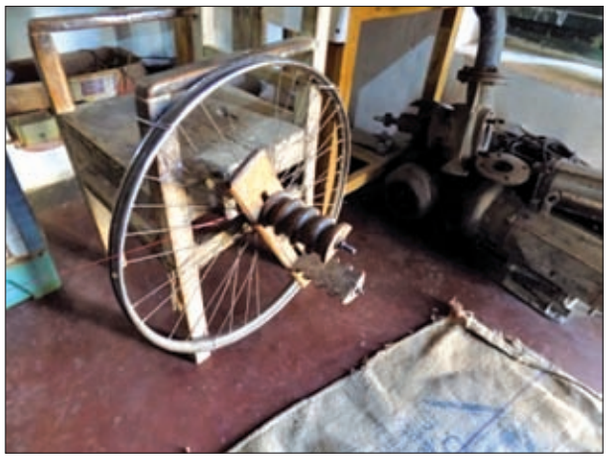
Description of innovation : Innovative motor winding is simple to operate and light weighted. This machine is able to complete the winding of 10 motors per day. He started this motor winding work since last 10 years.

Practical utility : Many rural youths learned winding motors from such cost effective methods. It cost less Rs. 500 per motor than commercial shopkeepers.

Economics of innovation : Cost of winding Rs. = 1000/- (3 HP motor)
Gross return Rs. = 1600/- (3 HP motor)
B:C ratio = 1.6:1

Potential : Innovation spreads and adopted by the 5 farmers of different villages. The cost of making machine is Rs. 500/- per machine and Sale price is 700/- per machine





Soil-less Production of Cucumber and Capsicum in Polyhouse

Name : **Shri Ram Prasad Patidar**
Village : Setkhedi
District : Dewas (M.P.)
Mobile number : 9981619852

Profile : Age : 53 year, Education : 10th , Land holding : 1.6 ha

Problem addressed : Reduction in yield of cucumber and capsicum due to soil borne disease

Description of innovation : Farmer grows the cucumber and capsicum in poly bag (12 x 15 inch size) using cocopeat in place of soil in poly house (2700 sq. m. size).

Practical utility : This technology increase the yield of capsicum and cucumber by reducing the attack of soil borne diseases and sucking insects-pests. This technology also helps in improving the fertilizer and water use efficiency because of the use of drip irrigation.

Source of information : Jain Irrigation, Jalgaon, Maharashtra

Economics of innovation : **Cucumber :** Gross return Rs. 300000; Net return Rs. 185000 B:C ration 2.61
Capsicum : Gross return Rs. 410000; Net return Rs. 285000; B:C ration 3.28

Potential : This technology now spread to approx 6.1 ha area and 51 farmers are adopted the technology in the district

Mosambi Cultivation Made Possible in Jabalpur

Name : **Shri Sanjeev Agrawal**
Address : House No. 2420, Old Post Office Road, Ranjhi Basti, Jabalpur
Mobile No. : 09981121121, 09300519111

Profile : Age : 52 year, Education : Graduation, Land holding : 5 ha

Problem addressed : The land under possession had steep slope with its highest point 18 feet above its tail end that tapers into the bordering Pariyat River. The kinetic energy of water draining from the adjacent hillocks and forests during rainy season increases flow speed of Pariyat that washes away the large quantum of medium soil of the farm every year. Attempts to grow vegetables failed due to monkey menace from the nearby forest.

Description of innovation : This young businessman in the year 2008 took a huge risk by purchasing and planted 160 saplings of Mosambi variety 'Pune new seller'. Initially it was flood irrigation that he followed by pumping water from Pariyat River, but later after gaining knowledge drip system was installed by investing Rs1.80 lakh in 2013, to increase water use efficiency and cut down his monthly electricity bill.

Economics of innovation : The annual input expense is Rs 16,000 (Rs 100/ Mosambi plant), Rs 52,000 as annual salary to the permanent labour and Rs 6,600 towards electricity bill the 5HP motor pump.

Income –Rs 4,40,000/- from Moasambi

Rs 25,000/ from turmeric

Rs 20,000/ from Jackfruit

Total Rs 4,85,000/-

Mechanized Potato Production

Name : **Shri Satish Singh Bais**
Village : Biloda sadak
District : Rajgarh (M.P.)
Mobile No. : 9826292470

Profile : Age : 30 year, Education level : Graduate, land holding : 4 ha

Problem addressed : Higher cost of cultivation for production of potato in sowing and earthing

Description of innovation : Automatic potato planter with slight modification to make higher ridge and earthing attachment

Practical utility : Saved the cost of earthing of potato, timeliness energy is also saved

Source of information : Krishi Vigyan Kendra , Rajgarh & CIAE, Bhopal

Economics of innovation : B:C ratio 3.1 due to saving of higher cost of manual laboring in sowing and earthing of potato

Potential : The technology is adopted by the adjoining potato growers as the innovator earned Rs. 1.67 lakhs through renting his planter to potato growers

Value Addition in Ber

Name : **Smt. Rani Rana**
Village : Madumar
District : Tikamgarh (M.P.)
Mobile : 8349711164

Profile : Age : 36 year, Education : 10th, Land holding : 3 ha

Problem addressed : Agro-ecological farming situation - irrigated Blackgram – wheat. Ber is not processed and consumed as such fetched less price.

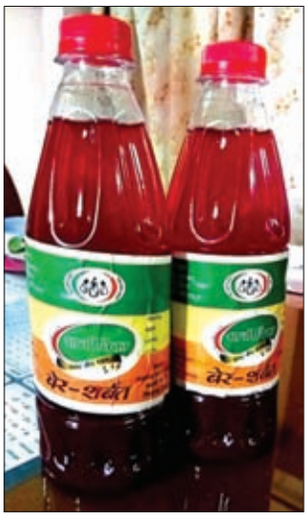
Description of innovation : Innovation of Ber sarvat provides a additional income to the farm women. i.e. two times.

Practical utility : Farm woman is also recognized under self help group "Tulsi". The income from ber sarvat raised to Rs. 45000/- per annum

Source of information : NRLM and KVK

Economics of innovation : Cost of production Rs. = 25000
Gross return Rs. = 45000
B:C ratio = 1.8

Potential : Marketing of the sarvat SHG linked with NRLM Tikamgarh



Cultivation of Vegetables in Four Farming with Organic Inputs

Name : **Shri Akash Chaurasia**
City : Sagar
District : Sagar (M.P.)
Mobile No. : 9179066275

Profile : Age : 31 year, Education level : 12th, Land holding : 3.1 ha

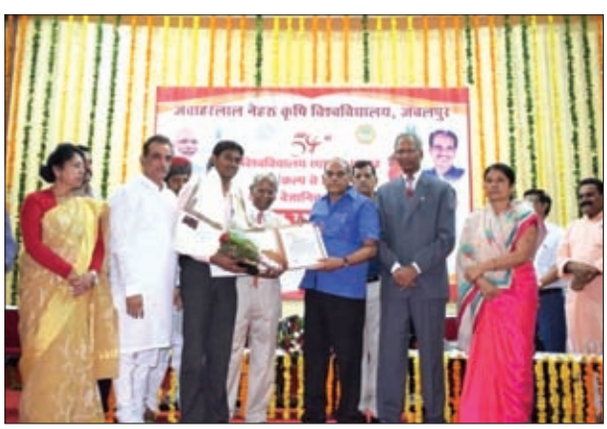
Problem addressed : Traditional at method of vegetable cultivation. In disirimate us of chemical fertilizer. Low Net Return

Description of innovation : By the intervention of KVK, he started vermicomposting and vermiwash collection through vermi pits. He apply 5-8 times vermiwash application in the vegetable cultivation directly from vermiwash container through drip irrigation and vermicompost is applied in soil @ 3-5 tonne/ha. As a follow up of training and demonstration he adopted hi-tech activities in growing of horticultural crops i.e. mulching, drip irrigation and stacking in tomato, multilayered vegetable cultivation by improved techniques and betelvine.

Practical utility : Application of vermicompost improved soil health and given productivity of tomato from 140 to 350 q/ha, brinjal 110 to 270 q/ha, ginger 70 -110 q/ha and betelvine 56 to 80 q/ha.

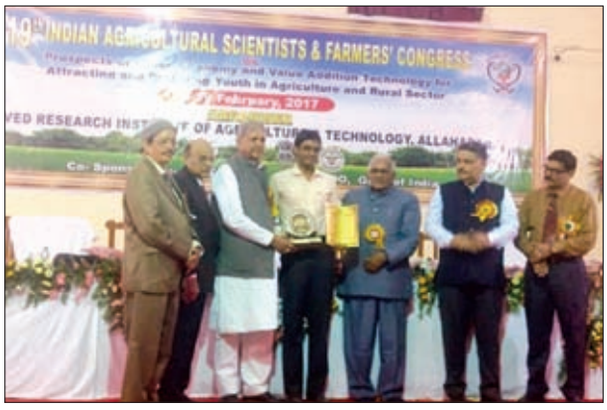
Source of information : Krishi Vigyan Kendra, Sagar, Horticulture Department, Sagar

Economics of innovation : After three years adopting the above technology Shri Chaurasia is gaining Rs 6.5 lakhs per year as net income however the cost of the cultivation and vermicomposting in 2.0 lakh in the starting year and thereafter 1.2 lakh only through this system.



Awards National level :
- Organic Four layer Farming National Award by Entrepreneurs Association of India, New Delhi
- Rastriye Swayam Shiddhi National Award By Jindal Foundation New Dehli
- Indian Best Farmers National Award By Bioved Research Institute of Agriculture and Technology Allahabad U. P.
- Mahindra Samriddhi India AgriYuva National Award Given By Mahindra & Mahindra, New Delhi
- Indian Best Farmer National Award By HR Club Mumbai date
- Patanjali Krishi Gaurav National Award By Patanjali Yogpeeth, Haridwar

Awards State level :
- JNKVV Farmer Fellow Samman 2017 By JNKVV, Jabalpur (M. P.)
- Maa Pratibha Devi National Award By Jan Parisad Bhopal MP



Harnessing Income through Vegetable Cultivation Using Waste Land

Name : **Shri Krishanpal Singh Mourya**
Post : Nimarkhedi
Tehsil : Punasa
District : Khandwa (M.P.)
Mobile No. : 9826621562

Profile : Age : 42, Education level : M.Sc. (Ag), Land holding : 5 ha

Problem addressed : Wasteland with no productivity. Less efficiency of water & fertilizer use. No intercropping in Banana, thus, limited profit through banana crop. Less production in open field tomato

Description of innovation : Removal of stones & rocks by digging the field. Fertigation with drip irrigation system. Intercropping of cauliflower and broccoli (6 plants) with two plants of main crop banana (6 x 5 ft). Cultivation of indeterminate tomato in open field maintaing four stems through cutting and prunning. Dual stacking arrangement in tomato. Coloured capsicum and parthenocarpic cucumber production in poly house and net house.

Practical utility : Assured irrigation with drip irrigation system and fertigation. Fertilizer application through drip system. Pest and disease management with accurate identification, application of pesticides and other cultural practices. Follow crop rotation in field and rest in poly house. Marketing with group approach and use of communication technology. Most efficient use of each input through management practices

Source of information : ICAR and different website, Agricultural literature & KVK, also using local meteorological data and accurate weather forecast systems like accu-weather, IMD, Eye in sky and Skymet weather forecast to prevent the crops from diseases and climatic calamities

Economics of innovation : Gross income Rs. 6.0 lakhs/acre from poly house by growing cucumber & coloured capsicum, Rs.1.5 lakh/ acre from cucurbits, 3.0 lakhs/acre from tomato, 2.5 lakh/acre from banana and on an average his net annual income is Rs.1.0 lakh/acre.

Potential : Inspiring by Sh. Krishanpal Singh Mourya, more than 500 farmers of the region are using fertigation (irrigation + fertilizers) system in many crops like chilli , cotton , gram, sugarcane, vegetables and orchards.They have a group of 20 farmers who are doing hitech vegetable cultivation and selling there produts in different markets of India. There are different group of farmers led by Sh. Mourya who are exchanging their experience, strategies and problems through whatsApp. They also meet together monthly

to discuss their problems and success with each other. They are interact through each other on different whatsapp groups like "Tomato Group ", "Chili Promoters Group" and "Pomegranate Groups".

Awards National level : • Best farmers award by Hon'ble C.M. of Gujarat Sh. Narendra Modi during Vibrant Gujrat Global Summit in 2013
• National Mahindra Samriddhi award "Krishak Samrat Samman" during 2016

Awards State level : • State level Best farmers award by Govt. of M.P. through ATMA during 2013.
• Best Farmer -District level (2011), Block level (2012-13) by district authorities

Banana Cloths from Waste Stem to Fiber- for Income Generation

Name : **Shri Dindyal Yadav**
Village : Baheradih
Block : Baloda
District : Janjgir-Champa (C.G.)
Mobile No. : 7999167820

Profile : Age : 38 year, Education level : Post Graduation, Land holding : 0.4 ha

Description of innovation : Collection of banana stem, separation of first layer from banana stems, separation of stem pulp and moisture, threading process, cloth making process through manual machine

Practical utility : First of its kind of innovation in state. Threads of various thickness levels manufactured as required. High demand due to uniqueness of fabric. Market price of cloth over Rs 1500/metre

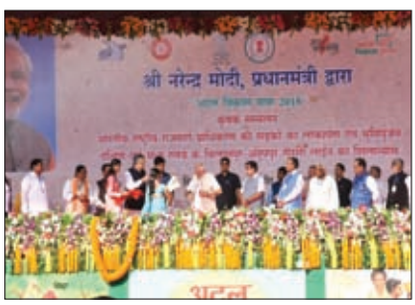
Source of information : Continuous technical support and guidance provided by Krishi Vigyan Kendra(KVK)

Economics of innovation : Activity for 2 Hrs. every day

Input cost (Rs./Month/Person)	2,000
Output (Rs./Month/Person)	10,000
Net Profit (Rs./Month/Person)	8,000

Potential : Presently 07 numbers of farmer adopted this technology and gained satisfactory return

Awards State level :
- Kisan Samridhhi Patra given by krishak samridhhi smarika
- ATMA Samman.



Utilizing of Wetland through Water Spinach Cultivation

Name : **Shri Ganesh Jangde**
City : Dhamtri
District : Dhamtari (C.G.)
Mobile No. : 7970008169

Profile : Age : 45 year, Education level : 10th, Land holding : 0.4 ha

Problem addressed : Round the year waterlogged area, that makes the land unfit for Paddy and Vegetable cultivation

Description of innovation : The wetland area is utilized by the farmer through water spinach cultivation.

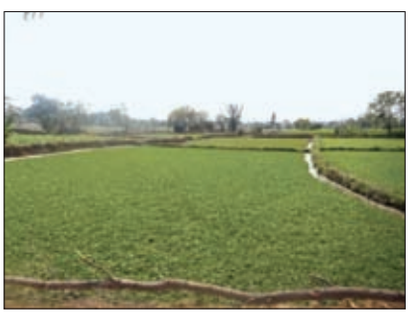
Water spinach is high value leafy vegetable crops, which is grown on semi aquatic area to utilize the potential of wetlands. The farmer used to transplant the cuttings of water spinach in the field at the spacing of 15x15 cm Plant to Plant and Row to Row in the field. After 2 months, the leaf is ready to harvest. Total 10-12 cutting is done from complete crop cycle of waterspinach.

Practical utility : This plant possess a good medicinal property which includes inhibition of liver disease, constipation, gastric trouble, intestinal disorder and also used to cure urinary tract infection. To see the medicinal importance of karmatta bhaji it is liked by every category of people during summer season in Dhamtari District. Water spinach is mainly grown under low-lying area of city and irrigated by urban and industrial waste water which drives significant economic activity, support about 50 farm families livelihood. They cultivate Water spinach from 50 years ago and they earn Rs. 30,000-40,000 within 4 months at 25 decimal land.

Source of information : Krishi Vigyan Kendra

Economics of innovation : Net return - Rs.1,50,000-1,80,000,

B:C ratio-3.0



Lotus Cultivation in Wetland for Additional Income

Name : **Shri Neelesh Meenpal**
Village : Ratnabandha
District : Dhamtari (C.G.)
Mobile No. : 7999118571

Profile : Age : 23 year, Education level : 10th, Land holding : 0.4 ha

Problem addressed : Round the year waterlogged area, that makes the land unfit for paddy and vegetable cultivation

Description of innovation : The Wetland area is utilized by the farmer through Lotus cultivation. Lotus is an aquatic crop which is suitable for waterlogged area. The farmers are mainly cultivated it for its flower, seed and Rhizome which is mainly used as raw and cooked form for salad and vegetable purpose.

Practical utility : In Chhattisgarh all the part of lotus are used for various purposes, roots are edible and used to make vegetables, pickles, used as a raw for salad making by cutting and slicing. Fruits are edible and eaten raw to cure many diseases, and normalize blood sugar level. Flowers are used to make garland and there is heavy demand of flower during Navratri and Diwali festival for worshipping purpose. Leaf lamina is used to serve food by many communities. Tender leaf, petiole and flowers are also edible and used medicinally to remove intestinal worms, better urination, vomiting and dizziness.

Source of information : Krishi Vigyan Kendra

Economics of innovation : Rs. 88000 - 90000/ hectare

Seedling Technology Under Protected Condition: Suitable for Vegetable, Spices and Floriculture

Name : **Shri Sachin Sanghvi**
Village : Village-Karmdi
District : Ratlam (M.P.)
Mobile No. : 9425195272

Profile : Age : 37 year, Education : M. Com, Land holding : 1.6 ha

Description of innovation : Shri Sachin Sanghvi established two thousand square meter natural ventilated poly house and one thousand square meter 70% green shade net for growing healthy seedling through pro tray. The nursery has become the place for exposure visit to different stakeholders. This has improved the socio economic status of the farmer with mentality of the nearby farmer to established the nursery with proven technological interventions instead of conventional practices.

Economics of innovation : Mr. Sanghvi growing seedling last four years but during 2014-15, he has grown 15 lakhs healthy seedling through pro tray and its sell at the rate of Rs. 1.25 per seedling. Then his gross income was Rs. 18.75 lakhs and net income was Rs. 12.25 lakhs. Ten labour involved in seasonally contract basis.

Establishing Nursery of Saplings for Agri-Preneurship

Name : **Shri Rishi Chaturvedi**
Village : Sukheda
District : Ratlam (M.P.)
Mobile No. : 09826147272

Profile : Age : 47 year, Education : M.A. (Economics), Land holding : 2 ha

Description of innovation : Shri Rishi Chaturvedi established nursery in the area of 3 ha and sell surplus the planting material of lemon, pomegranate, custard apple, guava, aonla, mango, gulmohar, ashok, kachnar, neem and seedling of marigold, chilli, tomato to different district of Madhya Pradesh and Rajasthan. He has proved himself as an example as a agri preneur among rural youth in Ratlam district. The nursery has become the place for exposure visit to different stakeholders. This has improved the socio economic status of the farmer with mentality of the nearby farmer to established the nursery with proven technological interventions instead of conventional practices.

Award recognition: : Jameshed Ji Tata National Virtual Academy for rural prosperity (M.S. Swaminathan research and foundation, Hyderabad. He has got award from Agriculture Deptt. & KVK

Economics of innovation

Year	Particulars	Cost (in Rs.)	Gross return (Rs)	Net profit (Rs)
2010-11	Development of infrastructure	3,00,000	4,32,000	16,000
	Quality Planting material, Sapling & Seedling	1,20,000		
2011-12	Quality Planting material, Sapling & Seedling	1,40,000	3,24,000	1,84,000
2012-13	Quality Planting material, Sapling & Seedling	1,60,000	4,87,000	3,23,000
2013-14	Quality Planting material, Sapling & Seedling	1,70,000	6,50,000	4,80,000
2014-15	Quality Planting material, Sapling & Seedling	1,84,000	8,46,000	6,62,000

Sugarcane Transplanting Technique (STP) in Organic Farming

Name : **Shri Rakesh Dubey**
Village : Kartaaj
District : Narsinghpur (M.P.)
Mobile No : 9425448313

Profile : Age : 48 year, Education : Graduate, Land holding : 8 ha

Description of innovation : He has developed new technique of raising sugarcane by sett transplanting method.

Practical utility : Economical feasible technology because in this method 1 quintal seed per acre and Rs. 1800 labour charge is required while traditional method requires 40 quintal seed per acre & labour charges of Rs. 5000 per acre.

Source of information : He has got the training/attended seminars and krishi mela on sugarcane cultivation as a member of sugarcane producer group by the help of Krishi Vigyan Kendra, Narsinghpur.

Economics of innovation : **Economics of STP method**

Particulars (Rs/acre)	Traditional method	STP method
Cost of cultivation	42950	24645
Gross return	149500	218500
Net return	106550	193855
B:C ratio	3.4:1	8.86:1

Potential : Spread farmer awareness programmes about organic farming by telecasting awareness programmes at Doordarshan, Aakashwani and Prasar Bharti through time to time interviews.

Diversified Organic Farming for Regular Income

Name : **Shri Jiyalal Rahangdale**
Village : Bagadmara
District : Balaghat (M.P.)
Mobile number : 8817972028

Profile : Age: 62 year, Education : 8th, Land holding : 4 ha

Problem addressed : Initial years of organic farming low income from per unit area, weed infestation is high

Description of innovation : He has developed tifani introduced summer squash, colored chilli, broccali, sweet corn, etc in Balaghat district. He is much familiar with organic biopesticides, organic mannure (Panchamrat, Matka khad), vermicompost & use of varmiwash, bio-agents *Trichoderma, Pseudomonas* etc. He is using staking in vegetable crops like tomato & other cucurbitaceous crops through using drip irrigation system & plastic mulching to reduce the weed population & increase water and nutrient use efficiency in the field. His field is identified as Farm of Mukya Mantri Khet Tirth.

Practical utility : He is using staking in vegetable crops like tomato & cucurbitaceous crops. He using plastic mulching to reduce the weed population, increase water and nutrient use efficiency in the field. Efficient utilization of vermiwash in vegetables crops and banana through irrigation drip system. He is doing organic farming a decade and saved 65 per cent of irrigation water, 45 per cent agricultural cost and increased 25 per cent crops yield as compared to other the farmers in same village who applied chemical fertilizers.

Economics of innovation : **Field crops:** 0.2 ha (Paddy + Gram), Net Income Rs. 26500, B:C- 1:2.90

Horticulture crops: 1.8 ha, grass income Rs. 9,47,520, B:C- 1:2.94, net income Rs 6,25,230

Livestock + Goatary : 1 lakh by milk, vermicompost, sale of goats and other product

Organic Farming of Scented Jeeraphool Rice

Name : **Shri Kenduram**
Village : Ayyari, Shankargarh,
District : Balrampur (C.G.)
Mobile No. : 09754327671

Profile : Age : 28 year, Education level : 12th, Land holding : 2.4 ha

Problem addressed : Poor market rate of jeeraphool dhan

Description of innovation : Adopted organic farming for cultivation of scented Jeeraphool rice

Practical utility : Organic produce of Jeeraphool rice has higher market rate as compare to others rice.

Market rate of Jeeraphool rice= 7000 Rs/q

Source of information : District Administration, KVK, Agriculture Dept & NRLM Balrampur

Economics of innovation : Total cost (Rs./ha) - 45000

Total income (Rs./ha) - 140000

Net return- Rs. 95000/- B: C ratio - 1: 3.11

Potential : Mostly farmers of Ayyari village adopting organic farming for cultivation of jeeraphool rice due to higher market value (70 Rs/ Kg) and higher demand of Jeeraphool rice.

Proper marketing of Jeeraphool rice through the SHGs over the C.G. state

Vermi-composting for Organic Cultivation

Name : **Shri Ghanshyam Kushwaha**
Village : Kushwaha Mohalla
Block : Narwa
District : Shivpuri (M.P.)
Mobile No. : 9752370436

Profile : Age : 47 year, Education level : 5th pass, Land holding : 3.6 ha

Problem addressed : More expenses in power, either diesel or electricity increasing cost of cultivation. Lowering soil fertility and productivity due to low organic matter in soil.

Description of innovation : Making use of biogas for running pump to lift water for irrigation. It reduces cost of cultivation, timely irrigation of crops which helps in better productivity. Production of vermicompost in large scale and selling it supplying verms to other farmers which earns him extra income.

Practical utility : He is a model for other farmers for proper use of dairy byproduct (cow dung). Other farmers are benefitting from him by learning and availability of vermicompost and verms.

Source of information : He received primary idea of vermicomposting from KVK Shivpuri by attending a training programme on organic farming in 2013. After that, he has been visiting many Central and State Institutes for more information.

Economics of innovation : Reducing cost of cultivation by running biogas pump (6000/- per ha). Improving soil fertility by adding vermicompost (15-20 % more production). Extra earning by selling vermicompost and verms (average 10000/- per month)

Potential : He is a source of inspiration in the district and other districts of many farmers have started vermicomposting due to him.

Organic Farming of Purple Rice and Purple Wheat with Value Addition

Name : **Shri Mohan Lal Chandrakar**
Village : Keshwa
District : Mahasamund (C.G.)
Mobile No. : 09977002275

Profile : Age : 49 Year, Education : MBA, Land Holding : 20 ha

Problem addressed : From traditional farming to mechanized farming. From producing raw material to finished product. Packaging, branding and marketing or rice, wheat grass and other edible item from rice and wheat

Description of innovation : Organic farming of purple rice and purple wheat under the umbrella of Urza Krishi Farmer Producer Company Limited has formed to do collective farming and organized marketing of our agri-products, so that it could benefits all the farmer members associated with FPO. At present cultivating organically purple rice and purple wheat which has medicinal value. As these two basic food items contains high antioxidants which helps to increase immunity in human body to fight against cancer, blood pressure, sugar, anti aging and stress relief. Purple wheat has got very high anti-oxidant, as the normal wheat has Anthocyanins 5-15 ppm and purple wheat developed by NABI scientist has 40-140 ppm. Our mission is organic farming in zero budgets, which will be achieved only when farmer will adopt cows as their part of life, not only cow's milk but its urine, cow dung, its horne, and after death of cow its decomposed body as manure is very fertile from organic point of view.

Practical utility : Medicine and organic manure made out of cow urine and local tree leafs (which animal do not eat) has helped me to increase quality of the production of crop specially paddy and wheat.

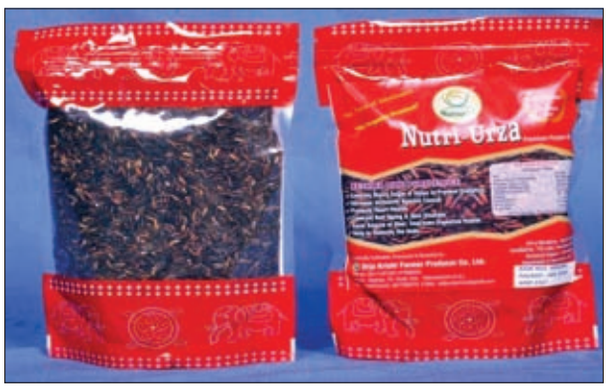
Source of information : Krishi Vigyan Kendra, field exposure and internet

Economics of innovation : **Organic Purple Wheat (Per ha):** Cost of cultivation Rs. 44000/- average yield is 25 quintal, gross income Rs. 87500/- @ 3500/ quintal. B:C ratio is 1.99.

Organic Scented rice (paddy) (Per/ha): Cost of cultivation Rs. 32500/-, average yield is 37.5 quintal, gross income Rs. 93750/- @ 2500/quintal. B: C ratio is 2.88.

Organic Purple rice (paddy) (Per/ha): Cost of cultivation 32500/, average yield is 40 quintal, gross income Rs. 160000/- @ 4000/ quintal. B:C ratio is 4.92.

Potential : Initially FPO was formed by the 13 farmers and spread the information through social media. By this personal contact of scientist from KVK and other innovative farmers it spread to larger area and till date around 50 farmers have been joined in this company



Field Based Water Chestnut Cultivation with Innovative Cropping System

Name : **Shri Chain Singh Bais**
Village : Rampayli,
District : Balaghat (M.P.)
Mobile number : 9754430298

Profile : Age: 50 year, Education level : Graduation, Land holding : 4.3 ha

Problem addressed : Limited land and water resources available for crop production, higher cost of inorganic fertilizer inputs, declining trends in crop yields and increasing environmental concerns.

Description of innovation : The Integrated farming system was sequenced with the multiple components (Water chestnut; WCN – Paddy + Pigeonpea; Fish seed + Azolla - Paddy + WCN seedling + Pigeonpea; Fish cum WCN + Pigeonpea; aquaculture + animal husbandry) for efficient and sustainable utilization to increase productivity, cropping intensity (more than 200 %) and crop diversification.

A. Paddy field with water depth 1-2 feet for WCN (Kharif) + organic paddy production (Rabi) + Pigeon pea (on dike).

A sequential view of WCN and Aquaculture based innovative IFS and crop rotation system

Practical utility : Increased the net income of farmer fourfold with throughout year cash flow. WCN farming acts as soil reformers as it enriches the soil with organic carbon and other important nutrients. The paddy cultivation in nursery pond utilizes the pond sediment nutrients thus increasing economic benefits.

Source of information : Krishi Vigan Kendra, Dept. of Animal Fisheries, Dept. of Horticulture, Dept. of Agriculture, College of Agriculture, Radio, Television, News Paper etc.

Economics of innovation : B:C ratio: 2.96. Diversification and intensification process is essential to maintain high agriculture production growth rate and raising the farmers' income.

Potential : 35 farmers has adopted the WCN farming in paddy field condition in very short period of five years. On the other hand, Many recognised personalities such Honorable Agriculture minister of Madhya Pradesh, Shri Gauri Shankar Bisen ji; personally visited the farm and appreciated.

Papaya Cultivation with Vegetables for Additional Income

Name : **Shri Dinesh Patidar**
Village : Mandvi,
District : Dhar (M.P.)
Mobile No. : 09893448942

Profile : Age : 43 year, Educational level : 12th, Land holding : 3.2 ha

Problem addressed : Lack of accommodative attitude of outsiders including extension organizations, research organizations, policy makers to farmers' knowledge, perceptions and values.

Due to use of high yielding varieties, he got higher yield as compared to potential yield.

Description of innovation : Shri Dinesh Patidar is a progressive and innovative farmer of Nimar Valley of the district. He started traditional agriculture on 3.2 ha land. During 1998 in 0.5 ha land applied organic fertilizer and installed drip irrigation of this land to destroy unnecessary weeds and pest-Improved efficiency of resource use

- Reduced ecological impact
- Smaller carbon footprint
- Sustained or enhanced profibility smaller corbon footprint
- He is a farmer progressive and innovative area, where all FYM and raw material of field collected and decomposed.
- Then it is used in the field. He is every year purchased 150 trolly of FYM to improve fertility status of the field
- The scientific techniques viz., water conservation through drip irrigation, sprinkler system, proper well drainage system and crop diversification, cattle dairy etc on their field.
- The new techniques viz., raised bed system, ridge and furrow system and other extension tools have great impact by which widely adopted by the farmers.

Seed treatment- all fruit, vegetables, agriculture crops seed treated used by farmer. He is also used bio-pesticide like neem oil, *tricohderma* to control of pest.

Practical utility : Farmer led innovation in agriculture is the process through which individuals or groups within a given locality discover or develop and apply improved ways of managing the available resources, building on and expanding the boundaries of their indigenous knowledge. Farmer led innovations are not of a technical nature

but rather are socio-economic and institutional innovations. The concept of farmer innovation is applied to agriculture technology processes that aim to improve rural livelihoods for sustainable development while ensuring inter-institutional and farmer learning

Source of information : Krishi Vigyan Kendra, Dhar (M.P)

Economics of innovation : More productivity more profit: Shri Patidar gain higher productivity in papaya, tomato, chilli, garlic, as compared to state productivity. He sold his produce Indore, Dhar, Bhopal, Mumbai, and Delhi mandies and earned 15-18 lakh per annum and secured his livelihood security.

Award : District level Best Farmers Award 2012-13 by Hon'ble Chief Minister Shivraj Singh Chouhan during Kisan Mela at Dhar.

Potential : **Crop diversification:** Shri patidar play a model roll to demonstrate the crop diversification in the district. He is grown crops, vegetables, spices and fruit plant. The cropping intensity is 300. All these happened due to the increased irrigation facilities and awareness about new scientific technologies.

Round the Year Marigold Production

Name	:	**Shri Govind Biswas**
Village	:	Ravindranagar
Post	:	Madanpur
District	:	Surajpur (C.G.)

Profile : Age : 30 year, Education : 5th, Land holding : 1 ha

Description of innovation : Shri Govind Biswas is a progressive marginal farmer having 1 ha of agricultural land, he was cultivating vegetables for the last several years with tireless efforts, but due to fluctuations in market value and disease & pest attacks, his annual net profit was only 60 to 70 thousand rupees. After coming in contact with the Krishi Vigyan Kendra Ambikapur, and receiving guidance of flower-growing techniques, he started marrigold flower cultivation with varieties arashivad, bhaskar, basanti, etc. in just 1.04 acre, which fetches him a total of Rs. 3 lakh. Now he is doing marigold production along with gladiolous in 1.50 acres and getting net profit of Rs 4.0 lakh per year. Therefor after adopting crop diversification from vegetable to floriculture he is getting more profit.

Practical utility : In marrigold cultivation, flower is harvested round the year by one time planting, which reduce production cost and inhance more income. Flowers are also used to make garland, bouques and other decorative materials which generates employment for farmer throughout the year

Multi-layered High Value Vegetable Crops with RCT and Crop Diversification

Name : **Shri Sitaram Nigwal**
Village : Avalia
Block : Nalcha
District : Dhar (M.P.)
Mobile No. : 8959128226

Profile : Age : 50 year, Education level : Primary, Land holding : 2 ha

Problem addressed : Monocropping, low yield & income, climatic risk, low market value, inconsistency in income, poor space management

Description of innovation : Multistory cropping with crop diversification like spice & vegetable cultivation along with seed treatment, IWM, IPM, INM, water conservation, space management, raised Bed with vertical & horizontal space management.

Practical utility : Income throughout the year, higher yield, maximum utilization of resources, higher B:C ratio, better soil health management, income and employment generation.

Source of information : He got training and exposure visits from KVK, Dhar. Further he was inspired & motivated by KVK, Dhar towards Multilayer cropping System

Economics of innovation :

Particulars	Before	After
Cropping sequence	Soybean-Wheat	Bittergourd + Ridgegourd + Sponge gourd+ Cowpea
Yield/ha	Soybean-16 q	Bittergourd - 108 q Ridgegourd - 78 q Sponge gourd- 22 q Cowpea - 13 q
Selling rate (Rs./quintal)	3000	Bittergourd - 1600, Ridgegourd - 2000, Sponge gourd - 1100 Cowpea - 2000
Gross income (Rs./ha)	48000	Bittergourd - 172800 Ridgegourd - 156000 Sponge gourd - 24200 Cowpea - 26000 Total - 379000
Net profit (Rs./ha)	**24000**	**279000**

Potential : Due to innovation, field of Shri Sitaram Nigwal became hot spot under MMKTY scheme of MP govt. Many farmers/ officials/ scientists of district & state made exposure visits to his farm & at present about 500 farmers are adopting this technology

Awards National level : Pandit Deen Dayal Upadhyay Antyodaya Krishi Puraskar-2017 for Zone IX by ICAR

Awards State level : Best farmer Award 2012-13 at district level by Shri Shiv Raj Singh Chauhan, Chief Minister of State, M.P.

Kadaknath Poultry Farming for Income and Employment Generation

Name : **Shri Pravesh Paradkar**
Address : Ward No. 10, Behind Allahabad Bank, Mohgaon Road
Block : Saunsar
District : Chhindwara (M.P.)
Mobile No. : 8600878281

Profile : Age : 29 year, Education level : MBA, Land holding : 0.8 ha

Problem addressed : Double crop farming situation mixed with livestock. Though double crop system is followed, yet small and medium farmers are not receiving high monetary return. Hence there is a need to raise the income of farmers.

Description of innovation : Use of Hydroponics fodder to reduce the cost of feed, Use of cow urine for medicine purpose with drinking water, Timely vaccination (F1, Gamboro, Lasota), Free range farming to make good and healthy birds, Natural way of egg laying system for ideal quality of eggs, Use of naturally grown vegetables (Spinach, Feneugreek, Cabbage), It's a low budget poultry farming.

Practical utility : Less man power required, Low input high output, Employment generation, As compared to other breeds it has low cholesterol, Omega3 and rich in 8 essential elements.

Source of information : JNKVV, Krishi Vigyan Kendra, Chhindwara

Economics of innovation :

Source of income	Unit / area	Production (Per annum)	Sale rate (Rs /q)	Cost of input (Rs/ha/)	Grass returns (Per annum)	Net return
Kadaknath Poultry	0.5 acre	-	-	1200000.00 Rs/year	2000000.00	800000.00
Wheat	1.5 acre	25 qt.	2000.00	9000.00	50000.00	41000.00
Cotton	1.5 acre	18 qt.	6000.00	15000.00	108000.00	93000.00
Total (Rs.)				**1224000.00**	**2158000.00**	**934000.00**

B:C ratio: 2.31

Potential : Near about 15 - 20 farmers has adopted the technology in the district as well as out of the district (Balaghat, Nagpur, Jabalpur, Narsinghpur)

Kadaknath Farming in Tribal Area for Additional Income

Name : **Shri Vinod Maida**
Village : Rundipada
District : Jhabua (M.P.)
Mobile No. : 7999340208

Profile : Age : 32 year, Education level : 12th, Land holding : 2 ha

Problem addressed : Due to draught situation at Jhabua and low productivity of existing cropping system he shifted from crop to poultry, Shortage of Kadaknath chicks and fulfill the demand as per need across the country, Less co-ordination between Kadaknath growers especially farmers and end users, Problems which will be solve:- *Supply chicks as per demand (heavy demand) and maintain purity of Kadaknath chicks*

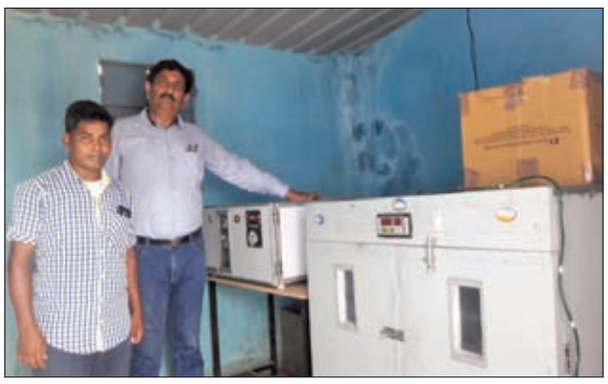
Practical utility : Kadaknath growers able to get Kadaknath chicks as per their demand, Pure Kadaknath breeds maintain at their original places

Source of information : Krishi Vigyan Kendra Jhabua, State veterinary department and farmers doing Kadaknath farming

Economics of innovation : This is highly sustainable business for him as B:C Ratio is 2.1:1 and less land require for this enterprise.

Potential : Ashish Kadaknath Farms is an inspiration for many more newly bud Kadaknath growers. They have trained many farmers (eight farmers in Jhabua only) at their farms and inspired many youth to adopt this enterprise.

Awards State level : Appreciation certificate from 'Co-operation department, Government of M.P.



Sericulture with Intercropping of Vegetables

Name : **Shri Anil Kumar Pendro**
Village : Mohagaon
District : Dindori (M.P.)
Mobile No. : 9165630993

Profile : Age : 39 year, Education : Primary, Land holding : 4.8 ha

Description of innovation : Shri Anil Kumar Pandro S/o Shri Asha Ram Pandro a tribal farmer from village Mohagaon Block-Samnapur, located 35 km from District- Dindori (M.P.) came to know about sericulture through JNKVV, Krishi Vigyan Dindori and Department of Sericulture, Dindori (M.P.). Resource person he made up his mind and started. Sericulture in Mulberry in the Year 2008-09 with the available resources. He managed mulberry from the block Head Quarter the beginning. He has using mulberry variety M-1635 and V1 for rearing silk worm larvae.

Economic : Net income of Rs 2 Lakh yearly, Unutilized eroded land has been utilized this, Enterprise can bring revolutionary changes as 70 % of the representative land of District resembles to this.

Practicle utility : Production of high quality cocoon, mulberry nursery and vegetable, inter cropping with vegetable drip irrigation. Nursery raising in net house, vermicompost fertilizer is also used for cereals and vegetables.

Lac Cultivation for Entrepreneurship Development

Name : **Shri Purshottam Mandavi**
Village : Tirkadand
District : Uttar Bastar Kanker (C.G.)
Mobile No. : 07587026328

Profile : Age : 38 year, Education : B.A., Land holding : 2 ha

Problem addressed : Crop diversification through semialata cultivation in upland situation,where they grow black gram/horsegram with very low production, proper utilization of farm resources

Low income from upland situation, where they grow rice/black gram/horse gram with very low production.

Description of innovation : Plantation of Semialata in 1 x 1 m and intercropping with vegetables

Practical utility : Lac cultivation in semialata gave three times more profit than traditional crop cultivation i.e. Blackgram/ Horsegram/Finger millet/upland rice

Source of information : Krishi Vigyan Kendra, Indian Lac and Resin Institute Ranchi

Economics of innovation : B:C ratio achieved 1.5 times more than the traditional crop (B:C ratio 3.8 in semialata cultivation whereas 2.25 in rice cultivation)

Potential : 60 farmers in 30 ha adopted this technology in the district

Livelihood Security through Lac Cultivation

Name : **Shri Milan Vishwakarma**
Village : Kurrubatha
District : Mahasamund (C.G.)
Mobile No. : 09770122497

Profile : Age : 43 year, Education level : 12th, Land holding : 4 ha

Problem addressed : Less irrigation water and non availability labours, low income in tratitional farming, high input cost.

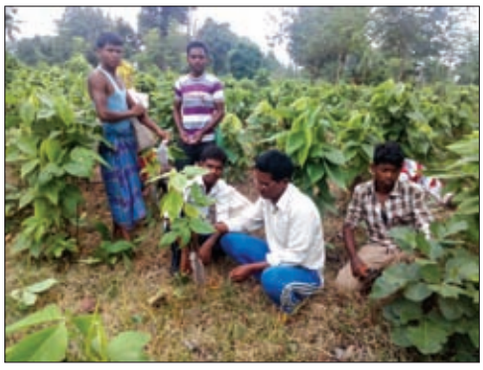
Description of innovation : Converted 4 ha paddy field in to Semialata transplantation for lac cultivation, growing plant in drip irrigation system, producing semilata nursery & seed.

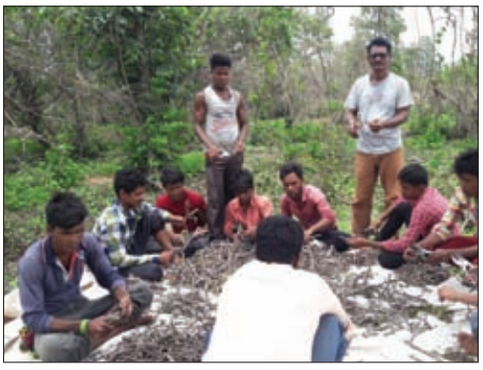
Practical utility : Now he is generating employment to farm women and rural youth and earning more than paddy or any other agricultural crops with minimum water requirement.

Source of information : Took training from Indian Institute of Natural Resins and Gum, Namkum–Ranchi and Krishi Vigyan Kendra, Mahasamund.

Economics of innovation : B:C Ratio1:3.3

Potential : Now he is giving training to rural youth, farm women and other farmers, result of this approx. 20 farmers are been started lac cultivation in about 20 ha along with cultivation in 250 kusum tree and 1200 hundred ber trees.





Landless Farmer to Successful Beekeeper

Name : **Shri Beniram Kushwah**
Village and post : Mirghan
District : Morena (M.P.)
Mobile No. : 9575723422

Profile : Age: 38 year, Education : 10th, Land holding : Land less

Problem addressed : Unemployment and poor economic status of the family, no permanent source of income.

Description of innovation : Change of employment scenario of the Morena district from farm labour to paid agriculture to beekeeping, starting beekeeping from 2 boxes to 400 boxes resulting in high income from honey, wax and marketing of bee colonies. Today district is well known for beekeeping and honey production in whole Madhya Pradesh and India.

Practical utility : Innovation of honey bee farming along with pulses, oilseed, fruit crops, spices and vegetable crops provides farmers a handsome additional return Rs. 15000 to 25000/ha. Beekeeping is sported pollination crops grown in the area. The area of mustard, medium duration pigeon pea and berseem are increase for final ability to the beekeeping. The Honey Bee colonies increase up to 80000 last 10 years and more than 5000 farmers/rural youth are associated in Bee farming and their produce. Honey and wax are widely marketed by the inter linkage with Rajasthan, Haryana, Delhi, U.P. and Punjab Beekeepers and marketing persons.

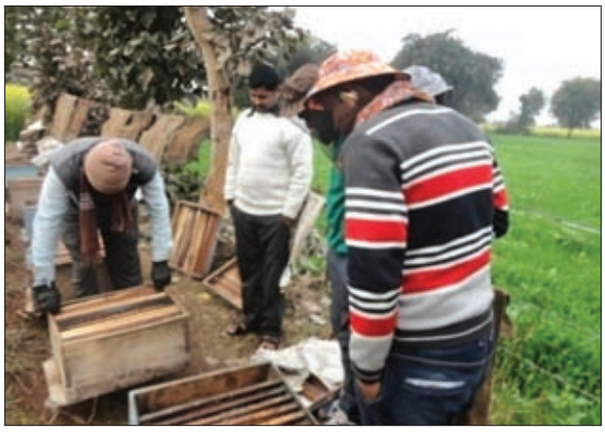
Honey Production- A Source of Additional Income

Name : **Shri Baburam Prajapati**
Village : Deri Road
District : Chhatarpur (M.P.)
Mobile no. : 7089254813

Profile : Age : 43 year, Education : M.A.

Description of innovation : He reared honey bee even in the period of maximum temperature by adopting refined techniques of Apiculture. He produced 6q honey in a year and earned Rs 1 lakh. He is the only person who started apiculture in district Chhatarpur.

Practical Utility : Working as Master Trainer and providing training to Rural youth through KVK. Chhatarpur for the first time broadcasted his innovative story in Bundelkhand Region. This innovation is very much useful to the farmers for getting the more money around the year. His innovation gave him and others farmers an opportunity to shift from field crops to bee keeping. From this technology farmer have received annually income Rs 1.50 lakhs and 365 man days employed/year under this practice.



Mushroom Processing and Value Addition

Name : **Smt. Nidhi Katare**
Address : Nirala Nagar, Singhpur Road
District : Gwalior (M.P.)
Mobile No. : 8770718029

Profile : Age : 34 year, Education level : M.Sc. (Microbiology), Land holding : 1800 sqr feet (Rental)

Problem addressed : Bacterial contamination in culture and incubator. She also faced problem in marketing of spawn.

Description of innovation : Started spawn production of oyster Mushroom *(Pleurotus florida)* in 2015. The Directorate of Mushroom Research, Solan (Himachal Pradesh) had provided pure culture. She had set up a small spawn production unit in 1500 ft rented area in Gwalior. She has a regular client 75 farmers from the M. P. and outside. Presently producing 9000 kg spawn of *P. florida* and *P. sajor-caju* in a year. She registered a company Natural Bio impact and Research Pvt. Ltd.

Practical utility : She is a successful mushroom entrepreneur presently guiding farmers for mushroom cultivation and has 75 farmers from M. P. and other states who are regular client of mushroom spwan. She registered a company with her husband.

Source of information : Skill development through training on scientific spawn production & exposure visit to successful enterprise.

Economics of innovation :

Particular	QTY (kg)	Cost of production (Rs)	Gross income (Rs)	Net return (Rs)	B:C ratio
Mushroom Spawn	9000	495000	720000	225000	1.45
Dry Mushroom	210	60000	105000	45000	1.75

Awards National level :
- Success story broadcasted by DD kisan on 30/03/2017.
- Published in ICAR-Kheti Magzine. (January-2018 PP:54)
- Newspaper coverage time to time.

Awards State level : Appreciation Certification by KVK, Gwalior on Mahila Kisan diwas on Oct.15,2018, Prize on various category of mushroom organized by RVSKVV, Gwalior and Directorate of Horticulture and Food Processing, Bhopal on Feb 22-23, 2018

Grapes Farming and Wine Production

Name : **Shri Jitendra Patidar**
Village : Titari
District : Ratlam (M.P.)
Mobile No. : 9630092244

Profile : Age : 34 year, Education level : M.Com & PG diploma in wine tech., Land holding : 10 ha

Problem addressed : According to agro-ecological farming situation the farmer was get lower income by *kharif* & *rabi* crops and traditional farming system that's way farmer have starting a unique cooperative model of farm production to processing and marketing of Grape wines by own developed channels.

Description of innovation : Using most advanced agriculture techniques like fertilizer to irrigation atomization, Irrigation with the help of farm plastic lining pond in fruits & grapes during water scarcity area in summer season, Increase the potentiality of lager scale production of grapes, Decrease the cost input and increase the quality of produce.

Practical utility : Grape wine consumption is coming in trend place of hard liquor, due to its health benefit awareness among people, Improved crop quality that resulted higher market value for grape wine in market, The area multifold increasing in past 3 years and expected to be continued due to highly increased demand for wine grapes.

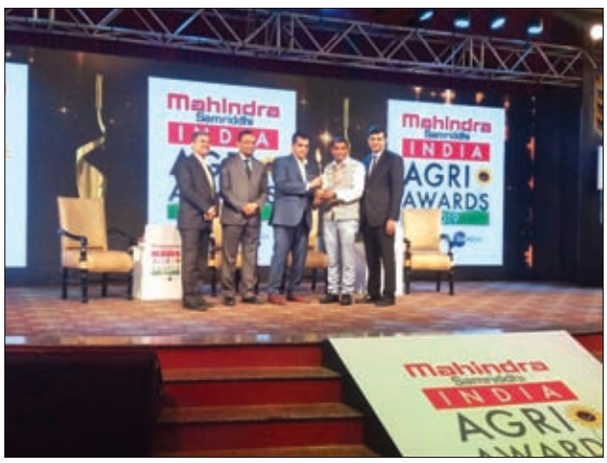
Source of information : He did experience of work with Paradise Ridge Winery & Farms California, USA (2007-08), Newton Vineyards - Farm & Cellar Team, USA (2011), South Pacific Cellars Ltd in New Zealand (2012), KVK, Jaora, Ratlam, State Horticulture Department.

Economics of innovation :

Quantitative Impact Wine Grapes					
Crop	**Cost of cultivation (Rs/Acre)**		**Yield (Kg/Acre)**		**Average yield in the village (Kg/ Acre)**
	Previous year	**Current year**	**Previous year**	**Current year**	
Wine Grapes	90000	110000	4000	7000	4000

Award National level : "Mahindra Krishak Samrat Samman award, 2019

Award State level : Bhumi Nirman Award, 2008


Mahindra
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AWARDS

Income Generation through Online Marketing of Agri-Based Product

Name : **Shri Rakesh Jaishwal**
Village : Jongra
Block : Sakti
District : Janjgir Champa (M.P.)

Profile : Age : 42, Education level : Graduation, Land holding : 2 ha

Problem addressed : Lower price of product in local market and difficult in delivery of product.

Description of innovation : The procedure for selling the products through online marketplace is started through seller registration followed by uploading of products through own brand name "Navya Agriallied", products are popular at local as well as abroad level, products were sale out by Amazon, ShopClues (popular online shopping sites), KVK Janjgir- Champa motivated farmers to link up through online marketing for advertisement of product.

Technique: Online marketing of vermicompost, cow dung cowdung compost, cow dung cake, neem cake, goat manure, potting soil and other organic and daily used products.

Practical utility : Higher price, global marketing, quick delivery system with feedback, lower operation cost, convenience reach, online marketing is important because it aligns with the way consumers make purchasing decisions.

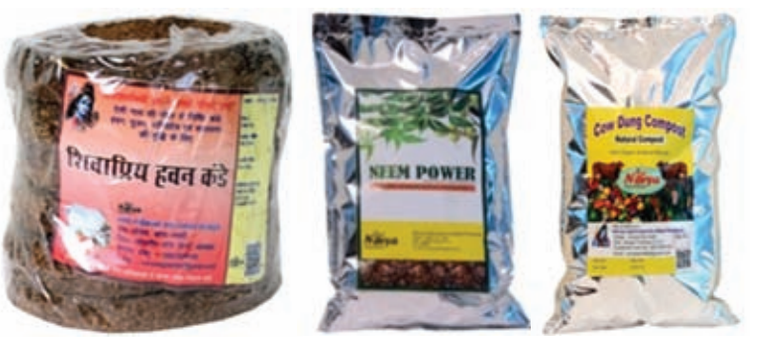
Source of information : Right and timely guidance provided by KVK Janjgir-Champa and self awareness.

Economics of innovation : Input cost Rs. 61000, Output Rs. 4,21,000, Net profit Rs. 3.6 Lac (Average Net Income)

Potential : Presently 4 farmer adopting this technology and ready for startup.

Since 1 year farmer started online marketing. With this practice employs 8 workers and plans to employ another 20 in next 1 year.

Awards State level : Kisaan Samridhhi Patra given by krishak samridhhi smarika, Late Bisahudas ji Mahant Smriti Samaroh



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जबलपुर, मध्य प्रदेश- 482 004 | Jabalpur, Madhya Pradesh - 482 004