

Crop Production

Seed production: A venture for income generation

Name : Sri Jogen Ghosh

Address : Village- KartikDanga, P. O.- Raipur, District- Birbhum, West Bengal

Use of good quality seed is necessary to achieve satisfactory crop yield. Seed replacement rate is still behind the recommended rate for most of the crops. Similar situation exists in Birbhum district. The farmers do not get good seed at reasonable rate. They are often cheated by the malpractices of seed sellers. Seed production and seed replacement rate are correlated. In this context, Rathindra KVK arranged training programmes to train the farmers to produce quality seeds of different crops. After completion the training programmes Sri Jogen Ghosh, a small farmer from KartikDanga village of Birbhum district produced seeds of paddy, wheat, sesame, black gram, green gram of different varieties as per the instruction of the KVK scientists and sold nearly 1065 kg pure seeds as TL seeds to different farmers of 10 different villages in the year 2006-07. In this way, he earned extra Rs. 15,700/- from seeds beside the normal production of different crops. Now, he is popular as an honest seed producer among the farmers. Regional Training Centre, NABARD, Bolpur also presented him as a successful farmer in a Workshop held at RTC, Bolpur. From his success other farmers showed their interest to produce quality seeds for additional earning.

<i>Crop</i>	<i>Variety</i>	<i>Quantity sold (Kg.)</i>	<i>Amount earned (Rs.)</i>
Paddy	Khitish	700	7000
	Niranjana	100	1000
Wheat	Sonalika	50	1000
Black gram	WBU 108	55	1650
Green gram	PDM-84-139	70	2800
Mustard	RW-351	60	1500
Sesame	B-67	30	750
Total		1065	15700

Nursery production as a source of livelihood

Name of Farmer : Sri Anil Das

Address : Vill- Palashdanga, P.O.-Konarpur, Block- Sainthia, District-
Birbhum, West Bengal

The KrishiVigyan Kendra Birbhum organized long duration skill-oriented entrepreneurship development-cum-training programme on nursery management for the rural youths. Sri Anil Das who had no idea about the multiplication as well as production of planting materials before his training at KVK. In the next year of training, he produced 18000 nos. planting materials in his nursery. After sale of total planting materials (fruit plants like papaya, limes, lemons etc., forest saplings like sonajhuri, sissoo etc. and vegetable seedlings like brinjal, chlli, cauliflower, cabbage, tomato etc. he earned Rs. 21000 as net profit. Getting inspiration from that, again he produced 25000 nos. plants in his nursery in the subsequent year and after sold the planting materials with a net profit of Rs. 34000/-. Beside these, he trained four persons who worked with him in his nursery. Out of these four people, two persons were women. These women belonged to two Self Help Groups called *MaaDurgaSwanirbhar Dal* and *MaaSitalaSwanirbhar Dal*. These SHGs produced 28000 numbers of plants and supplied to their local Panchayats and earned a substantial amount of money.

Guava showed the way of improving livelihood

Name : Mr.RafiqueAlam

Address : Village - Singhia, P.O. - SinghiaKulamani, Distt. - Kishanganj, Bihar

Mr.RafiqueAlam was born in 1980 in a poor family and accompanied by younger three brothers, four sisters and parents. His primary schooling was done from Kishanganj up to only 9th standard class. He could not get education due to unavailability of money and his family liabilities. He came in contact with KVK, Kishanganj during 2007 and obtained idea of establishment of fruit orchard for his livelihood. He also contacted some entrepreneurs who were his relatives in West Bengal. Mr.Alam obtained the land of about 4 acres on lease from villagers and procured mother plant of guava variety from Nadia. Initially, he planted 800 mother plants on his leased land using the scientific fruits technology with a cost of Rs. 50,000. Besides this work, he also started processing of raw turmeric and sold in local market.

In juncture of production management strategies with guava orchards he innovated the idea of crop regulation through twisting of branches for good flush and fruiting. He became able to get two harvests of guava fruits in 18 months resulting 120 kg fruits per plant at the age of two year old orchard. He sells fruits in Kishanganj (Bihar) and Islampur, Kanki, Siliguri and Dalkohla in West Bengal in market on an average @ Rs. 25-30/kg. He also started technique of graft gutty in guava from the skill obtained from KVK, Kishanganj and prepared 3000 air layers every year and sold the planting material @ Rs. 70-80 per sapling. He is popularizing the innovative ideas for orchard management and graft gutty preparation in fruit plants. He earns about 9 lakh annually from the guava orchards (5.5 acre) through his innovative agro techniques. Other farmers are also obtaining innovation from him for develop of Horticulture. After benefited from these activities, he purchased 4 acre of land and obtained another 4 acre land on lease.

Mr.Alam plans to undertake the cultivation of high value vegetable crops and off season vegetables under polyhouse with the able guidance of KVK Scientists of Kishanganj considering the market demand in Kishanganj district and nearby West Bengal.

Economics of farming

<i>Crop</i>	<i>Area (acre)</i>	<i>Cost of production (Rs. per unit)</i>	<i>Return (Rs. per unit)</i>	<i>Net income (Rs. per unit)</i>
Guava	5.5	60,000/acre	2,40,000/- acre	1,80,000/- Acre
Planting material	3000 Plants (per plant cast 15/plant)	70-80 /Plant	2,25,000/-	1,80,000/-

Income level before adopting such farming

<i>Crop</i>	<i>Area (acre)</i>	<i>Cost of production (Rs. per unit)</i>	<i>Return (Rs. per unit)</i>	<i>Net income (Rs. per unit)</i>
Paddy	4	20,000/-	40,000/-	20,000/-



KVK scientists along with Md. Rafique Alam at his farm

Floriculture: A lucrative business in hills

Name : Mr. Arun Chhetri

Address : Village- Bong Basti, Block- Kalimpong-I, District- Darjeeling, West Bengal

Sky is the limit for those who believe in themselves. True to this saying, a driver turned florist Mr. Arun Chhetri from Bong Basti has shown that nothing is impossible to a willing and aspirant soul. A taxi driver by profession for about 12 years discovers that the future of his family would be in dark with a mere income of less than Rs. 2000/ month if he continues in the same field. As his fate would have taken a U- turn, this profession brought him many opportunities to visit various nurseries as he toured his passengers. Getting to know about the income generating capacity through cultivation of flowers, he started his first - nursery with few local flowers like gladiolus and marigold from 2006 as an extra source of income in a plot of five decimals. The profit incurred inspired him to produce more flowers in a larger scale. Meanwhile, through many practising farmers he came into contact with a SHG-JICA, which in turn introduced him to KVK and his first 3 days training on cultivation practices and plant protection on vegetables and flowers in the year 2012. Further, he was sent to Ludhiana in 2012 to attend a seminar on production and packaging of flowers and vegetables by DJKVK. After returning he took a loan of Rs. 1.7 lakh from a bank. Planting materials, sprayers with pesticides were provided by KVK with which he expanded his business by incorporating many varieties of flowers like Azalea, Gerbera, Anthurium, Zygo, Marigold, Chrysanthemum; hanging creepers and vegetables like Cabbage, Cauliflower, Broccoli, Tomato, Dalle etc. Again, in the year 2013, he was sent for exposure training to Kolkata by KVK to get a hands-on-training on cultivation management.

All operations regarding cultivation is carried out by his family members and one permanent labour with a temporary hiring of 20-25 labourers during the peak period for harvesting, packaging and marketing purposes. Through this profitable activity he was able to repay his loan on time and also helped him to improve his standard of living.

Though his products are mainly sold in the local market of Kalimpong, he also exports them to various states like Sikkim, Bihar, and Jharkhand in India and in neighbouring countries like Nepal, Bhutan and Bangladesh. He now owns a land of 35 decimal which he utilizes for growing flowers and vegetables. His annual profit ranges from 2 to 2.5 lakhs.

Sri Chhetri has become a role model to the small and marginal farmers and rural youths of his locality. He has already organised two training courses on Gerbera cultivation for SHG of

two villages namely Bong Busty and Deorali for a period of 20 days. Among them Ms.AnuChettri has already adopted his techniques on flower cultivation and many other farmers are on their way to follow his footsteps. KVK Darjeeling felicitated Mr.Chettri on the occasion of KrishiMela, 2014, held at Relli Tar, Kalimpong where he was honoured by Sri BimalGurung, President, GorkhaJanamuktiMorcha. Mr.Chettri says that apart from expanding his own business he is interested in upliftment of many other poor farmers like him so that they can improve their socio-economic standard through self-employment and income generation.



Integrated farming for sustainable source of income

Name : Sri Sahadeb Basak

Address: Village- Buincha Basak Para (Fulia), Block- Shantipur, District- Nadia, West Bengal

Sri Sahadeb Basak has set an example as dedicated and innovative farmer. Born in 1960, Sri Basak is well educated and has graduated in Sociology with Honours in 1982 from University of Kalyani. He completed Master's Degree in the same subject from the same university in 1985. Later on, he chose agriculture as profession and started devoting his time focusing on a better farming. He did a certificate course in Organic Farming from IGNOU, of BCKV study centre in 2011 and came in contact with Nadia Krishi Vigyan Kendra.



In a total of 3.0 ha of land area, he practices Integrated Farming. He usually grows field crops like paddy, green gram, lentil and sesame etc. covering 1 ha area. He is cultivating some new age horticultural crops viz. strawberry, berry and dragon fruit along with mango, jackfruit and papaya in 1.2 ha land area. He maintains a small dairy unit with 4 cows, a good duckery unit rearing about 200 numbers of Khaki Campbell ducks and a noticeable fishery area covering 1.6 ha land, rearing major and minor carps like chital, vetki, prawn, koi etc. There is a mushroom unit also as a part of his farming venture.



As a progressive farmer he always tries to improve his skill and eager to know every aspects of farming from various sources, trainings, experts, departmental personnel etc. He eventually set a good example of improved cultivation/farming by incorporating those knowledge with his own innovation in front of other farmers. He adopted so many new technologies in farming. Sri Basak adopted organic farming system (including agriculture and horticulture crops, livestock, fisheries, duckery, mushroom cultivation, bio-gas plant, vermi-composting etc.) with traditional knowledge in the farm since 2000.

He was motivated by the scientists for cultivation of Aromatic rice and started Aromatic rice-based cropping system since April 2012 under RKVY Project on "Bengal Aromatic Rice" of Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Nadia, West Bengal. As a result, he got the Organic Certification of Aromatic rice-based cropping system from the Certification Agency, IMO Control Pvt. Ltd., Bangalore. As a progressive farmer, he always

tries do to something more and by adopting advanced technologies he started commercial cultivation of temperate crops (viz. strawberry, brocolli, brushel sprouts etc.) in the field since 2010.

After the success of aromatic rice cultivation he started conserving and cultivating some indigenous rice cultivars (viz. Radhatilak, Gobindabhog, and Kalobhat etc.) and also supplied milled rice to the Department of Agril. Marketing, Govt. of West Bengal during 2012 and 2013.

A glimpse of his farming venture is given bellow:

Activity wise income, cost-benefit ratio, gross and net income year wise for previous two years

<i>Crop/ Animal Husbandry</i>	<i>Year</i>	<i>Expenditure</i>	<i>Gross Income</i>	<i>Net income</i>	<i>Cost: Benefit ratio</i>
Field crops		Rs./ Ha.	Rs./ Ha.	Rs./ Ha.	
Paddy	2011	36,000.00	90,000.00	64,000.00	2.50
Paddy	2012	38,000.00	1,00,000.00	62,000.00	2.63
Greengram	2011	14,500.00	40,000.00	29,000.00	2.75
Greengram	2012	16,000.00	45,000.00	29,000.00	2.81
Horticulture crops					
Strawberry	2011	1,20,000.00	3,20,000.00	2,20,000.00	2.50
Strawberry	2012	1,00,000.00	3,20,000.00	2,20,000.00	3.20
Vegetables	2011	33,000.00	95,000.00	62,000.00	2.87
Vegetables	2012	35,000.00	1,05,000.00	70,000.00	3.00
Fisheries					
Major and minor carps, Chital, Vetki, Prawn etc.	2011	2,50,000.00	5,00,000.00	2,50,000.00	2.00
Major and minor carps, Chital, Vetki, Prawn etc.	2012	2,20,000.00	5,50,000.00	3,30,000.00	2.50
Live Stock					
Dairy (Cow)	2011	45,000.00	55,000.00	10,000.00	1.22
Dairy (Cow)	2012	50,000.00	65,000.00	15,000.00	1.30
Mushroom					
Oister Milky Mushroom	2011	38,000.00	84,000.00	46,000.00	2.21
Oister Milky Mushroom	2012	48,000.00	1,12,000.00	64,000.00	2.33

NOTE:[Paddy = Gobindabhog, Radhatilak, Kalabhat, Kalanunia etc. ; Vegetables= Red cabbage, Brocolli, Cherry, Tomato, Celery Parsely etc. ; Fruits = Papaya, Strawberry, Dragon Fruits, Ber, Mango, Jackfruit etc.]

His success influenced neighbouring farmers so much that many other farmers get interested and adopt new advanced technologies. Besides traditional crop cultivation, other farmers also take a chance to grow some newly introduced temperate crops. The cultivation of strawberry has been spread to neighbouring farmers' fields of Santipur Block in Nadia district and Balagarh Block in Hooghly District. Sri Basak also supplied planting materials of strawberry to Jalpaiguri KVK, RKM Dayananda Ashram, Hooghly during 2011 and CADC Nadia during 2013. Sri Basak tried another new age crop, dragon fruit and his success

influenced the farmers in Santipur Block of Nadia district so much that they started growing it from 2012.

His interest of cultivating indigenous Rice varieties has been spread into fellow farmers also. Some of them started the cultivation of Kalobhat (black rice) in Balagarh Block in Hooghly district.

As a true innovative farmer, Sri Basak made a new intervention in organic farming by using of Liquid organic manure, which later on practiced in the system of production and management and named as Amritaapani. It is a mixture of leguminous leaves (1 kg), cow dung (5 kg) and cow urine (1 liter) in 20 liters of water kept for 7 days and it is then sprayed mixing with water (1:10 ratio) directly to both agricultural and horticultural crops as organic nutrient in the farm.

As a farmer, he contributed a lot for the organic farming system by innovative ideas and practices. Amritaapani, the liquid organic manure is one of them.

Another is Conservation, recycling and using of farm waste in different manner, like

- ☞ Use cow dung and urine mixed with water in bio-gas plants
- ☞ Use of bio-gas for boiling of water used for sterilization of paddy straw for mushroom cultivation
- ☞ Use of ducks' litter and *Azolla* as fish feed in farm ponds
- ☞ Use of mushroom wastes and *Azolla* as duck feed
- ☞ Use of vermin-compost as manure in agricultural and horticultural crop fields
- ☞ Use of pond water for irrigation

He also tried to mingle the traditional practice with modern technologies and succeeded in prevention of outbreak of disease and pests e.g.

- ✓ Use of fresh Neem leaf-based insecticides (1:10 volume in water) inherited from ancestors produced in farm as botanical pesticide against different types of insect-pests.
- ✓ Use of Tobacco leaf-extract as bio-pesticide (1:10 volume in water) produced in the farm to controls the insects of Cauliflower, Cabbage, Lettuce etc.
- ✓ Use of fresh Tulshi (*Oscimum sanctum*) leaf (50 gm) mixed with cow milk (200 ml) and water (10 liter) to control wilt disease of solanaceous crops in the farm.



His farming skill was recognized and he received a number of awards at different level. He got Krishak Ratna award from Govt. of West Bengal during Mati-Utsav 2015.

Zero tillage: A revolution in agriculture

Name : Sri Neeraj Kumar

Address : Village + Post- Baishadh, Thana-Kumarkhan, Block- Madhepura, Bihar

“Everything is possible” is the logic applied by Sri Neeraj Kumar during last 12 years. Mr. Neeraj Kumar is a graduate and he is doing wheat and Maize farming by using zero tillage machine and bhoka machine. He is the only mode of inspiration for the nearby farmers who is earning Rs.12, 000/- per annum by the zero tillage machine. After the death of his father, who also involved in the same profession of farming, Mr. Neeraj continued the same. As per advice of Scientists of Madhepura KVK he started farming with zero tillage. In the very first year, he got the profit of Rs. 1, 30,000/- from 20 acre cultivable land. He also started inspiring other nearby farmers and as a result, they cultivated total 250 acre land in the area by zero tillage machine during the year 2002.



Equipment for bhoka Method

Now-a-days, he is earning Rs. 8-9 lakh per annum through zero tillage machine. He got the trainings from the Scientists of Krishi Vigyan Kendra, Madhepura and he has always been the source of inspiration for the other farmers nearby. The ATMA, Madhepura has also helped in this regard. He also bought rotavator, sprinkler and zero tillage machine etc. with the help of Bihar Government. He wants to cultivate maize with Zero Tillage Machine in coming days. His eagerness of adopting new technologies in agriculture is definitely appreciable.



Mr.Neeraj Kumar at his farm

Floriculture: A colourful step of income generation

Name : Sri. Abhishek Kumar
Address : Village - Barouli, Block – Barun, District - Aurangabad

Sr. Abhishek Kumar, a very dynamic farmer, is associated with Aurangabad KVK since 2010. He has an affluent back ground and received quality education from Neterhat and MBA from Pune University. After completing his education, Mr.**Abhishek** joined corporate sector but he was not satisfied. After 3 years of service, he returned back and decided to start agricultural work at his own village. He started growing paddy and wheat from 2 ha of land but he wasn't able to produce enough to support his family. The farmers of his village were facing a lot of problems in farming due to lack of capital, technical knowhow, unavailability of quality seed and fertilizer on time, and unavailability of proper market price. Therefore, he wanted to do something different, something creative to tackle his frustration, but, he was unable to decide what and how to do for fetching better profit.



During the year 2010, suddenly he visited Aurangabad KVK and discussed his problem with the Programme Coordinator and other Scientists of the centre. He was interested for floriculture in his land. After regular persuasion with the scientists, finally he decided to cultivate Jarbera, Liliam under poly house and Marigold in open field condition. He took help for technical knowhow from District Horticulture Officers and also got financial support of Rs. 200000/- as farmer share basis. Then, he started Jarbera cultivation under poly house structure and collected 1000 Jarbera sapling from Bengaluru. Under the able guidance of KVK Aurangabad Scientists, again he started cultivation of Liliam too in another poly house. As on date, he is supplying more than 7-8 hundred Jarbera stick and Liliam flower to Patna and Varanashi market and fetching around 3000 per day. In last year, Govt. of Bihar provided AC van to Mr. to promote flower cultivation and for getting better market price. Now, Mr. **Kumar** became an ideal farmer for inspiring the youths of Aurangabad district. Aurangabad KVK also feels proud for the contribution behind the success of Mr.**Abhishek Kumar**.



Economics of flower cultivation

<i>Crop/Livestock/ Fish/Enterprise</i>	<i>Area (acre)/No.</i>	<i>Cost of production (Rs. per unit)</i>	<i>Return (Rs. per unit)</i>	<i>Net income (Rs. per unit)</i>
Jerbera	880 m ² x 2	140000 (1 st year)	400000	260000

Economics of paddy and wheat cultivation (before adopting floriculture)

<i>Crop/Livestock/ Fish/Enterprise</i>	<i>Area (acre)/No.</i>	<i>Cost of production (Rs. per unit)</i>	<i>Return (Rs. per unit)</i>	<i>Net income (Rs. per unit)</i>
Paddy	2 ha.	18000	37000	19000
Wheat	2 ha.	12000	25000	13000

Papaya: The wonder fruit for income

Name : Sri Satyendra Kumar Mehta
Address : Vill. +P.O.-Chandoli, Block-Madanpur, District- Aurangabad, Bihar

Sri Satyendra Kumar Mehta is a hardworking and devotee young vegetable producing farmer of village Chandauli, district-Aurangabad, Bihar. With only one acre of cultivated land he was not able to produce sufficient which could fulfil proper nutritional and educational requirements of his 8 family members. Mr. Satyendra Kumar attended Krishi Mahotshawa at Madanpur block and came in contact with KVK Aurangabad Scientists during the year 2011. Then, he decided to take 5 acre land on Patta for cultivation of vegetables and fruits. He started to cultivate exotic vegetable and papaya so that he could earn a lot within a limited time frame. His farm produces were being marketed in Patna, Varanasi including local markets with the help of own SHGs. For getting confidence and better technical knowhow he visited Indian Vegetable Research Institute. Finally, he became an innovative vegetable growing farmer in the district. He was also the recipient of Kisan Award from Bihar Agricultural University, Sabour, Bhagalpur in Kisan Mela. He contributed a lot in the field of horticulture development in the surrounding villages and also established farmers' club for the poor growing farmers.



Economics of farming

<i>Crop</i>	<i>Area (Acre)</i>	<i>Cost of Cultivation (Rs.)</i>	<i>Income (Rs.)</i>	<i>Net Income (Rs.)</i>
Papaya	12	8 00000	30 00000	2200000
French bean	02	12000	96000	84000
Simlamirch	05	40000	2 65000	2 25000

Improved farming coupled with agri-preneurship increased income

Name : Sri Harikant Singh

Address : Village- Gaduai, Block- Chewara, District- Sheikhpura, Bihar

Sri Harikant Singh turned his wretched farming situation into improved agriculture by gradually adopting multiple approach of scientific farming techniques along with entrepreneurship at his farm. Having ITI educated in 1967 and land resource of 4.0 ha only he left the job after initial 7 years and started his leadership in his farming in the year 1976 and achieved the level of self-sufficiency only after 20 years.



During 2006, for the first time he came in contact with the Scientists of KVK Sheikhpura and felt that lack of latest agricultural knowledge was the major problem for low agricultural production. With the help of several training programmes from KVK Sheikhpura, prevailing Government's Schemes, Kisan Credit Cards etc. he fulfilled his dream i.e. achieved optimum yield to fetch maximum return. Sri Singh started to develop irrigation facilities in his land with deep bore well and a diesel pump set which converted 2.0 ha land under irrigation for producing High Yielding Variety (HYV) crops. Through these interventions, he observed drastic change in the net profit from his farm in the second year. Getting encouragement from the result, he further added improved tools and techniques like zero tillage seed drill, SRI method of rice cultivation, SWI method of wheat cultivation, IPM, Vermi-composting, green manuring, scientific onion cultivation, onion seed production etc. along with disease resistant HYV crops for raising net profit in a sustainable manner.

By 2013, he achieved the level of 136 quintal /ha productivity of rice var. Sahbhagi and over 150 quintal/ha of rice hybrids. Sri Singh achieved not only the record production of rice in that year but also started tissue culture banana orchard in

0.6 ha land along with mixed vegetable cultivation. He achieved the productivity of wheat as 68 quintal per ha using improved variety PBW-343 with SWI method and obtained the yield of onion at 630 quintals per ha using var. Agri-Found Light Red. Establishment of orchard with mango trees, guava trees, plantation of Sagon and Mahogini in non-irrigated plot and rearing of high yielding (20 litre per day) crossbred cows along with vermicomposting, and pulse production etc. were the important components of his farming.

By adopting scientific farming Mr. Singh properly maintained his family consisting of 7 members, employed three persons from his family, purchased 1 ha land and made his house pucca. He is a role model for hundreds of farmers. Now, he strongly advocates the role of KVK as a technology and knowledge resource centre for the farming community of his area.

Changing life through guava orchard

Name : Shri Umeshwar Singh
Address : Village- Affaur, Block- Nagra, District- Saran, Bihar

For enhancing the productivity and profitability of the farm land, Shri Umeshwar Singh innovated a Guava based multiple cropping system taking 4 crops per year apart from main crop of guava. He established a guava garden keeping planting geometry in such a manner that there was easy movement of tractor operated farm implements and no shading effect of guava canopy on the agricultural crops. Four rows of kharif maize were planted in between the two rows of guava. After the harvest of maize, Toria was taken that could be harvested in mid-January. Summer vegetables like bottle gourd and okra was taken. Banana was planted all around the guava garden to give a protective wall and to act as wind break from hot and high speed westerly wind, apart from giving additional yield. During summer months, natural mulch of paddy straw was applied and worms were released in the field for in-situ vermicomposting, moisture retention and nutrient supply for longer period.



Shri Umeshwar Singh took a Gross Income of Rs. 12000/ha from Maize, 9000/ha from Toria, 15000/ha from Bottle Gourd and okra in 2011, the initial year of intercropping in guava orchard that successively increased to Rs. 16300/ha from Maize, 13200/ha from Toria, 22000/ha from Bottle Gourd + Okra and 1900 /ha from Banana apart from 52000/ha from Guava. Due to intensive care and regular fertilizer application in annual crops, the yield of main crop also increased during the years. Seeing the successful cultivation of this farming system of Shri Singh, some neighboring farmers also started cultivation in the same manner and now the village is known for guava cultivation in the district and Shri Singh is a role model in the district.

Okra cultivation: Means to brighten farmer's fortune

Name : Mrs. Fulia Mehta

Address: Village- Sadanandpur, P.O.-Bishanpur, Block- Saraigarh, District- Supaul, Bihar

She is basically a woman farmer involved in family farming with husband and young son. She owned five acres of land in which 3 acres were irrigated and rest two acres were non-irrigated. In irrigated land, she cultivated vegetables, wheat, paddy etc. Where as in non-irrigated land she takes pulse, moong, paddy etc. She has very keen interest in learning and demonstration of new technologies in her field. She earned about rupees two lakh annually from cultivation of vegetables, wheat, maize, paddy etc. She is in regular touch with the KVK and is taking the benefit provided under NICRA project.

In Rabi 2014, plastic mulch in Okra crop was demonstrated in her half acre of land. The Kashi Pragati variety of Okra were used in demonstration. The crop was sown in the 2nd week of February 2015. The total yield obtained till 15.06.2015 was 21 quintals. She sold with varying rate of Rs. 40/Kg, Rs. 30/Kg, 20/Kg and Rs. 10/Kg. The total earning from Okra came around Rs. 48,500/- She was feeling very happy and wished to continue further.



Zero tillage: A new dimension in agriculture

Name : Shri JagdishYadav
Address : Village & Post- Chopnadih, Block- Markachho, District Koderma, Jharkhand

Shri JagdishYadav has about 12 acre agricultural land and his main occupation is agriculture. The major crop he used to grow rice in *Kharif* season and wheat in *Rabi* season along with gram and linseed in 2 ha & 0.5 ha each, respectively. He participated in an on campus training conducted by KrishiVigyan Kendra Koderma under NICRA project. In the training, scientists of the Kendra demonstrated zero tillage technique in details which could reduce the cost of cultivation and increase the crop yield. But, all farmer participants including Shri Yadav were psychologically in favour of conventional tillage. They believed, *‘the more you till the more you eat’* and used to give example of other local sayings like *“The money lender could refuse you any time but tillage won’t disappoint you”*. The farmers’ in the area believed in age old perception and tried to convince their children for good field preparation before any crop was sown.



The mindset was so firm which seemed that KVK scientists were betraying the public by suggesting for zero tillage (ZT) technique.

After lot of queries, Shri JagdishYadav was ultimately ready to sow rice with zero tillage technique during *Kharif2014*. At the time of sow all the farmers, present at site, criticized the technology. Germination and growth of crop were so good but due to severe infestation of weeds he could not get desired yield of rice. Farmers made fun of him and commented that scientists had chosen the most appropriate farmer i.e. the laziest one to work with. Due to the comment by the fellow farmers, Mr. Yadav demoralized and refused to use ZT technology in wheat crop. Two training programmes on ZT technique were organized by the KVK scientists to motivate few farmers including Shri JagdishYadav and finally, some of them were ready for ZT demonstration on their field. At the time of demonstration, the situation were reverse. The farmers, who committed during training programme for ZT in his/her field, were not at all ready to do that. After motivation by KVK Koderma scientists and NICRA SRF, Shri JagdishYadav was again convinced to sow wheat crop by zero tillage on that land which were always remain kept fallow after rice harvest due to late harvesting of rice var. Sahbhagidhan Abhishek and excessive soil moisture. He sown wheat (var. K 307) in

that 0.5 ha land with zero tillage machine under supervision of KVK scientists. At the time of sowing about 30 farmers from that village and neighboring villages were present. The majority of the farmers present at site was advocating for conventional tillage (CT) in which farmers generally plough the field at least 3-4 times before sowing of wheat and then broadcast the seed @ 150-180 kg/ha followed by planking. That philosophy had been passed on from one generation to the next. All the present farmers from the same village and neighbouring villages were criticizing about the technology and proved them as looser. They commented that scientists were playing with their field.

The farmers were surprised to see satisfactory germination which was 2 days earlier than conventional method and dark green colour wheat seedlings but none of them agreed that this technology was successful till the final yield data were available. Some farmers still argued that their ancestors and forefathers were not fools who strongly advocated more and more plugging before sowing wheat. After 2nd irrigation, few farmers changed their idea about the technology after seeing the more number of tillerings which was more than the conventional method in same variety and profused growth with less weed population. At the time of crop cutting, all farmers who were present at the site were observed that by adoption of this technology, the yield of wheat increased with the tune of 21.4% over conventional method (28 q/ha). Mr. JagdishYadav told that by adopting the technology he saved about Rs. 2940/- as cost of cultivation (ploughing- Rs. 2400/-, seed- Rs. 300/- and labour- Rs. 240/-). He also observed that the technology saved irrigation water because it took less time for water to flow across the field in no-tilled compared to normal tilled plots for the first irrigation. He also told that sowing was advanced 8 days as compared to conventional method which was due to saving in land preparation and sowing. That was also a reason for the additional yield obtained under zero tillage in late condition which was predominantly due to the late harvesting of SwarnaMahsoori (MTU 7029). It reduced the use of diesel fuel resulting to lower air pollution. He observed that changing one hectare of land to zero tillage system saved about 18 liters diesel. Considering all the above, an additional advantage of about Rs.9540/- per ha came due to adoption of ZT technology. Success of this technology in the field of Mr. JagdishYadav, Village- Chopnadih not only proved a boon to the farmers of the same village but also served as an example to trigger the ongoing efforts of scientists of KVK Koderma under NICRA project and other extension workers in the district.