



SUCCESS TALES OF BIHAR FARMERS

Bihar Agricultural University, Sabour



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PREFACE



Bihar is an agrarian state with huge agri-entrepreneurial opportunities. Farmers have realized significant results from adoption of scientific agricultural practices in the state. Although the large majority of Bihar's farmers are small and marginal, the synergic impact of the state's fertile soil, abundant fresh water and availability of adequate labor force creates greater potential for earning higher income through intensive agriculture.

With the establishment of Bihar Agricultural University, Sabour, under the visionary leadership of Sri. Nitish Kumar, Hon'ble Chief Minister of the state, the Govt. of Bihar has given high priority to agriculture and allied sectors and has made wonderful development of the state's agriculture. With the financial support from the government of Bihar and the hard work of the farmers/youth, the state has been blessed with success in every field of agriculture.

With the technical support of the constituent institutes of Bihar Agricultural University, Sabour, such as Krishi Vigyan Kendras, Colleges etc., hundreds of farmers of the state have achieved great success through their efforts/experiments in agriculture and allied sectors and have also made their socio-economic upliftment. Our scientists have tried to record the journey of some such farmers/youth from experiments to results, the result of which is this book.

This work is a small reflection of the success achieved by the farmers through the application of the techniques transferred by the University. This book is not just a collection of success stories of some farmers/youth, but also a source of inspiration

to other farmers for experimenting and innovating in the field of agriculture and allied sectors. I congratulate all the scientists associated with this publication for their efforts. I also extend my warm wishes to the farmer who have achieved new heights of success by taking advantage of the advanced techniques and technologies.

D. R. Singh

OUR PROUD

FARMERS



Name: Vijay Kumar Mandal

Age: 27 Yrs

Venture: Seed Production

Village: Anduali

Panchayat: Andauli

Block: Kishanpur

District: Supaul

Educational Qualification: B. Tech

Institution facilitating venture: KVK, Supaul

SEED PRODUCTION AUGMENTS FARM INCOME OF ENGINEERING GRADUATE

It was sheer matter of destiny Vijay Kumar Mandal had to take up farming as occupation. A qualified civil engineer, he had to choose farming as occupation forced by circumstances. However Mandal successfully developed and diversified farm activities. At present he has no remorse about what life had offered him. Taking up seed production apart from cultivation

of conventional crops, Mandal has diversified farming and also registered income growth. He had to shoulder responsibility of looking after farm activities of his family following death of his father. Family of Mandal has total 18-acre farm land. Earlier his father used to look after farm activities. Mandal took charge of agricultural activities in 2016 after completing

B. Tech course. Cultivation of paddy, wheat, jute and moong used to be undertaken by family of Mandal previously in comparatively more fertile 14-acre land of total agricultural holding. He also started cultivating conventional crops after he took up farming as livelihood occupation. However low return from cultivation of conventional crop was

cause of concern for Mandal.

He intended to diversify farming for supplementing income. Though several options were considered by Mandal however he was unable to decide course of action for diversifying farming. Unable to chalk out diversification plan, he subsequently decided to seek suggestion from scientists of Krishi Vigyan Kendra (KVK), Supaul.

Mandal met KVK scientists in 2018 to seek their advice on farm diversification. He was advised by scientists to start seed production in addition to cultivation of conventional crops. The KVK personnel extended him opportunity of participation in Bihar Skill Development Mission (BSDM) training programme on seed production.

In fact, this was beginning of his association with KVK. Handholding support of institution significantly contributed in his success. Mandal took up seed production after successfully completing 28-day BSDM training programme. Participation in training programme helped him gain both practical and theoretical knowledge of seed production.

Mandal earmarked his two plots each of 2.5 acre for purpose of seed production. It was in year 2018; he started commercial seed production of both wheat and paddy. While in case of wheat

Mandal started producing seed of two varieties namely DBW-14 and Sri Ram-216, he took up seed production of Boro PD, Sweta Mansoori and DB 11 varieties in case of paddy.

He also started seed production of paddy varieties Chandan Chur and Rajendra Mansoori to fulfill his personal seed requirement. On an average, Mandal produces 30 quintals seed each of paddy and wheat at present, taking together different varieties. He has significantly excelled in seed production with all required scientific and technical support from KVK.

In initial years after Mandal started commercial seed production he had to face problem in selling his produce. Since few people in his locality were aware about his commercial venture was reason behind his problem. The fact people were not sure about quality of seed produced by him also contributed in his problem.

However, problem faced by Mandal in selling seed was over after people in his locality gradually came to know that he has been producing seeds for commercial purpose besides people were assured about quality of his seeds. More than 60 farmers of his area had approached him for seed last year. In fact last year Mandal was virtually unable to meet supply demand of seed.

While sell of one quintal of wheat seed excluding input cost fetches him amount between Rs 1500-

2000, he earns between Rs 1000-1200 excluding input cost selling one quintal paddy seed. Mandal has been registering net income between Rs 4 -5 lakh per katha from agricultural activities since he started seed production in addition to cultivation of conventional crops.

Previously his net income was between Rs 1-1.5 lakh per katha from agricultural activities. Mandal aims at increasing seed production activity in future by taking agricultural plot on lease. By ensuring proper packaging of his produce, he intends to handle sell of his produce more professionally from next year.





Name: Vinita Kumar

Age: 43 yrs

Venture: Mushroom farming

Village: Parasi

Panchayat: Muzaffarpur

Block: Noorsarai

District: Nalanda

Educational qualification: Diploma in civil engineering

Institution facilitating venture: KVK, Nalanda

MUSHROOM FARMING PAVES WAY FOR SELF-EMPLOYMENT

Vinita Kumar had started mushroom farming driven by his strong urge to do something at his own for livelihood. A well-qualified man, he had previously served in private sector for almost 15 years working in different organizations. It was in 2018, he finally decided to quit his job and take up farming as livelihood occupation.

In fact Kumar was never satisfied serving in private sector. His dissatisfaction also

contributed in his willingness to look for self employment opportunities. In light of the fact Kumar belonged to an agrarian family, he always had farming in back of his mind while looking for self employment opportunities. However, initially he was slightly hesitant about taking up farming. Since family of Kumar had only three acres of agricultural land was reason behind his hesitation. Taking into consideration

his father and two brothers were already involved in farming of conventional crops in family agricultural holding, Kumar was keen on taking up agricultural activity requiring comparatively less land. This led him consider about mushroom farming. Kumar who was able to establish himself as successful mushroom grower gained initial knowhow about mushroom farming watching videos on YouTube.

Subsequently he decided to contact scientists at Krishi Vigyan Kendra (KVK) and Nalanda College of Horticulture (NCOH), Noorsarai for upgrading his knowledge concerning mushroom cultivation. Kumar toying with idea of beginning farming tentatively decided to start mushroom cultivation before leaving his job. He had been in contact with scientists at NCOH and KVK, Nalanda for the purpose since 2017. In fact assurance of all required support given by scientists helped Kumar in taking firm decision in regards to beginning mushroom cultivation.

The handholding support extended to him by KVK and NCOH significantly contributed in his success as mushroom grower. In June, 2017, Kumar was enrolled by NCOH for participation in a training programme on mushroom farming.

He was able to learn scientific techniques of mushroom farming following his participation in training programme. Subsequently in 2018, through ATMA Kumar was provided an opportunity to participate in a master training programme held at KVK. He was able to get himself acquainted with practical aspects of mushroom farming participating in master training programme. Kumar received further knowhow about mushroom farming from scientists at Bihar Agriculture University (BAU), Sabour. It was first time in 2018 he

started mushroom farming in two 300 Sq ft rooms besides in 400 sq ft verandah of his house. Oyster, milky white and button were among the mushroom varieties that were taken up for farming by Kumar. His first-year earning was not as per expectation. However problems experienced in course of growing mushroom helped Kumar learn better techniques of farming.

Of the three mushroom varieties that were grown by Kumar, he could earn profit only by selling oyster variety of mushroom. By selling button and milky varieties Kumar was able to retrieve only input cost of farming. Mushroom yield was not as per expectation of Kumar due to green mold problem in substrates. However despite low yield he was able to register net income of approximately Rs 50000 through sell of mushroom. From his first-year experience, Kumar realized potential of mushroom farming was high in his area because of demand. On advice of scientists as well as taking into consideration his experience, Kumar introduced some measures which proved to be effective.

He introduced use of decomposer for sterilization. Kumar also adopted zero energy poly tunnel (low- cost method) for rapid composting. The zero- energy poly tunnel (low- cost method) facilitates speedy chemical reaction essential for rapid composting. Kumar had learnt



about the method in course of participation in a training programme organized at National Research Centre for Mushroom, located at Solan in Himachal Pradesh. The winter harvest of mushroom in year 2019 particularly proved encouraging for him. During the season Kumar sold 20-25 kilograms of button variety mushroom per day apart from other varieties. His net income was around 1.5 lakh during the season. Kumar has been sanctioned loan for mushroom farming under horticulture department project. He looks forward to sizably increase mushroom production in current year. Kumar has already created required infrastructure for the purpose. With increased infrastructure he aims at selling 50 kilogram of button mushroom and 20 kilogram of oyster mushroom per day round the year.



Name: Khagesh Mandal

Age: 32Yrs

Venture: Strawberry farming

Village: Usmanpur

Panchayat: Usmanpur

Block: Kharik

District: Bhagalpur

Educational qualification: Matriculate

Institution facilitating venture:

Bihar Agriculture University, Sabour

FARMER DOUBLES INCOME THROUGH STRAWBERRY FARMING

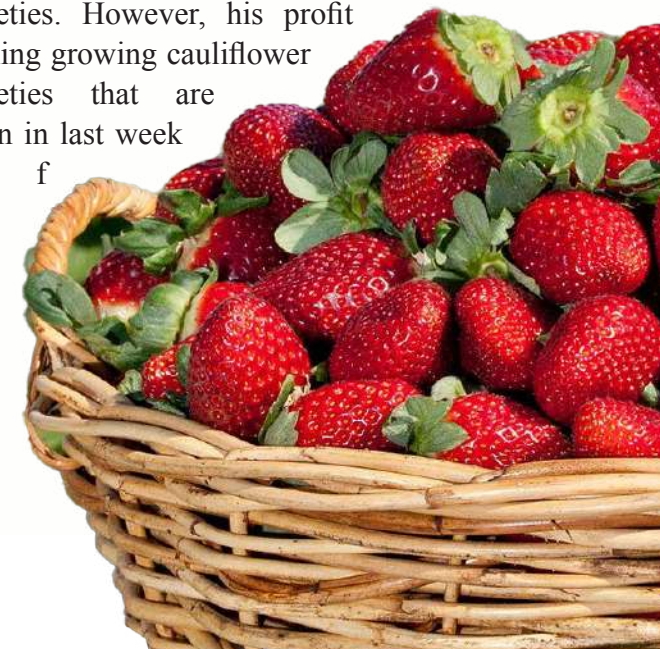
A little more than two years back Khagesh Mandal used to grow mainly conventional crops and vegetables. He had hardly any idea; strawberry farming could be viable option for him to diversify and also for increasing income. Mandal for the first time experimented strawberry cultivation after farming of strawberry was introduced in his area in 2018-19, under Australia-India council funded project. Implemented by Bihar Agriculture University (BAU), Sabour, the project aimed at promoting

strawberry cultivation as an alternative fruit.

Promoting cultivation of high value crop being one of the major objectives of the project, demonstration farming of strawberry was taken up in field of selected farmers. Mandal was among three farmers in Usmanpur village, in whose field demonstration farming was taken up by BAU under Australia-India council project. The encouraging return of first year led Mandal take up strawberry cultivation again in successive year 2019-20. Belonging to an agrarian family, he

had started farming in 2016. His family having only one acre land had taken three acre land on lease for carrying out agricultural activities. Apart from Mandal his two brothers are also engaged in farm activities.

The cultivation of conventional crops failing to give desired return, he started cultivation of papaya and cauliflower to supplement his income. Earlier Mandal used to grow banana extensively. However, he was forced to discontinue banana cultivation with passage of time due to high prevalence of panama wilt disease in banana crop. So far cultivation of cauliflower is concerned Mandal on an average registers income between Rs 80000 to Rs 85000 per hectare growing early varieties. However, his profit earning growing cauliflower varieties that are sown in last week



December and harvested after mid- January, is generally low. Due to sharp drop in price of cauliflower after mid-January, retrieving even input cost of cultivation usually proved difficult for Mandal. He was seriously considering about discontinuing cultivation of late cauliflower varieties. It was around this time, work for promoting strawberry cultivation had been initiated by BAU in his area under India-Australia council project.

The BAU team members involved in execution of the project encouraged Mandal to take up strawberry farming. They explained him how strawberry cultivation could increase his income.

Mandal was informed sowing of strawberry plants could be taken up in end of December and fruits could be harvested January onwards.



Contemplating to discontinue cultivation of late cauliflower varieties, he readily decided to start strawberry farming. Under the project, in year 2018-19 Mandal besides two other farmers of his village were provided free of cost 500 strawberry plants each, for demonstration farming. The strawberry plants provided for demonstration farming included that of Nabila and Camarosa. Mandal was able to grow approximately 1.60 quintal fruits, first time he started strawberry farming.

Taking together produce of two other farmers of his village who participated in demonstration farming, total strawberry production in Usmanpur village was around two quintals in initial year. Quantity wise first year produce of strawberry was quite encouraging for all the three farmers including Mandal. However, selling produce proved slightly difficult for growers in first year.

Because of the fact strawberry is a relatively unknown fruit in this region, the growers had to face problem in locating buyers. However, assisted by BAU team members involved in execution of the project, the growers were able to sell strawberry at reasonably good rate of Rs 300 and above per kilogram to people through their local contacts. Net income of Mandal from strawberry farming was approximately Rs 50000 in first year. In subsequent year (2019-20) Mandal

besides two other farmers purchased 4000 strawberry plants each of Nabila and Camarosa varieties from Pune in Maharashtra and Siliguri in West Bengal. The second year produce of Mandal was around four quintals. Total produce of strawberry at Usmanpur village was more than seven quintals in second year, taking together produce of Mandal beside two other farmers. In second year Mandal registered net income of Rs 1.10 lakh through sell of strawberry. The BAU team involved in promotion of strawberry farming created what's app group in subsequent year to facilitate online sell of strawberry. With creation of what's group, the growers did not have to face similar problems in selling their produce they had to experience in first year.

On an average strawberry grower receive supply order of 100 kilogram per day during season. At times flooded with orders Mandal is unable to meet supply demand. His annual net income from agricultural activities has almost doubled since he started strawberry farming. Compared to previous annual net income of approximately Rs 1.10 lakh, his income in 2019-20 was more than Rs 2.10 lakh. Taking into account profit earning, Mandal intends to take up extensive farming of strawberry in future. He has planned to grow Winter Dawn apart from Nabila and Camarosa varieties of strawberry this year.



Name: Sanjeet Kumar Singh

Age: 40 Yrs

Venture: Afforestation and horticulture

Village: Baroun

Panchayat: Darama

Block: Kawakol

District: Nawada

Educational qualification: Intermediate

Institution facilitating venture: Krishi Vigyan Kendra, Nawada

FARMER ADDRESS LIVELIHOOD ISSUES THROUGH HORTICULTURE AND AFFORESTATION

Compared to past life is much better now for Sanjeet Kumar Singh, a small farmer. Earlier in absence of adequate resources for sustenance things were difficult for him. However, subsequently Singh sorted out his livelihood problems successfully through afforestation of his 10 katha barren land besides by starting small scale horticultural activities. Singh is also involved in some other activities for supplementing his income.

However it is primarily because of horticulture and afforestation he is presently capable of addressing need of his family. Singh earns more than three lakh rupee per annum at present. He was forced to discontinue education after intermediate due to financial problem in family. Singh migrated to Bengaluru and subsequently to Delhi for earning livelihood following his marriage in 2002. He worked as security guard

in private firm during his stay at Bengaluru and subsequently at Delhi.

Singh however was grossly dissatisfied with what he could earn staying outside. Deciding to earn livelihood at home he returned to his village in 2004. However due to limited scope of employment at his native place, finding proper livelihood opportunity proved difficult for Singh.

He was keen on taking up agriculture as livelihood source since agriculture is mainstay of economy at Kawakol block where his village is located. Singh however lacked any concrete idea about nature of farming that could ensure adequate income for fulfilling his family needs. He initially established poultry farm in land adjacent to his house.

Singh having 300 hundred birds in his farm was able to generate income from poultry business, that was hardly sufficient to run home and hearth. Meeting educational expenses of his two sons and a daughter proved difficult for him. Singh subsequently opened a general store and also established a cosmetic shop to supplement his income. The shops are presently run by his wife.

Income of Singh registered slight increase after

he opened general store and cosmetic shop. However it was through afforestation and horticulture he was able to attain economic self-sufficiency. In 2010-11, Singh had an opportunity



of participating in a training programme on raising and management of nursery organized by Krishi Vigyan Kendra (KVK), Nawada.

His participation in training programme led him explore possibility of earning livelihood through afforestation. The KVK scientists also suggested him to take up agroforestry and horticulture for livelihood. In this context Singh had discussion with scientists on utilization of his barren land.

In fact he had been in contact with KVK since he returned to his village. Earlier for establishing poultry he was extended technical assistance by KVK. Singh was provided poultry birds of improved breed by KVK for frontline demonstration.

As part of handholding support from KVK, a group of scientists subsequently visited his barren land with objective of suggesting him measures that could be useful in utilization of his land.

Singh started afforestation of his barren land taking into consideration suggestion of scientists. The forest department land at foot of hill located adjacent to his land holding was also covered by him for afforestation.

He planted several fruit bearing trees including that of mango, guava, blackberry, jack fruit, wood apple and vine fruit apart from trees known for wood value. Singh was provided technical and scientific assistance besides quality

planting materials by KVK for afforestation. In his endeavour of afforestation ensuring availability of water needed for watering trees proved to be a major challenge. Making arrangement of water was difficult for him in absence of any water source near his land.

Singh subsequently purchased a motor driven cart locally referred as Jharjhariya or Jugadgari for transporting water from water source located at a distance of more than one kilometer from his land holding.

Transportation of water by motor driven cart helped Singh overcome water problem to a considerable extent. At present he owns total 564 full grown trees planted on his barren land and adjoining forest department land.

He annually earns approximately Rs 29000 selling fruits besides Rs 33000 selling chopped wood. Total 100 trees of the total are trimmed by Singh every year. The dry chopped branches are sold by him as wood and firewood. Singh also grows tomato and brinjal as sharecropper, on land holding of a close relative.

By growing tomato and brinjal he respectively earns Rs 15000 and Rs 4000 per annum. Annual net income of Singh from poultry farming is approximately Rs 78000. His cumulative income is Rs 1.60 lakh per annum including his income from general store and cosmetic shop.



His two son runs business of filling up different types of online application forms. They also contribute approximately Rs 47000 annually in family income. Singh who has successfully augmented his income through afforestation of his barren land and horticulture looks forward to increase number of trees to 1000 in future by further plantation.





Name: Ajeet Kumar Singh

Age: 28 yrs

Venture: Para vet service provider

Village: Rangabhitta

Panchayat: Fala

Block: Pothia

District: Kishanganj

Educational qualification: Graduate

**Institution facilitating venture: Krishi Vigyan Kendra,
Kishanganj**

SKILL ACQUISITION BRINGS SELF EMPLOYMENT OPPOR- TUNITY FOR YOUTH

After graduating Ajeet Kumar Singh was keen on securing conventional job. Alike majority youth of his age, he wanted to avoid uncertainties of unconventional job. However destiny had something else in store for him. Unable to find conventional source of employment he was forced to sort out livelihood issues through self employment.

Acquiring skill related to para vet services including artificial insemination, he established himself as para vet service provider. Singh on an average earns Rs 1, 30,000 annually at present by providing para vet services. He has no remorse now regarding his failure to secure conventional job.

An opportunity of participation in Bihar Skill Development Mission (BSDM) training programme helped Singh immensely in establishing himself as para vet service provider. The training programme was organized by Krishi Vigyan Kendra (KVK), Kishanganj.

Previously in course of participation in workshops on Rabi and Kharif crops organized at Pothia block by agriculture department and district administration, he came in contact with KVK personnel including scientists. Taking note of his involvement in agricultural activities, he was asked by scientists to visit KVK. Singh used to assist his father in farming while studying and also after graduating.

The scientists made Singh aware about latest in field of agriculture including advanced agricultural technologies on his subsequent visit to KVK. The scientists also informed him about BSDM training programmes. While giving details of skill development initiative of government, the KVK personnel told Singh that ensuring self employment opportunities for youths is primary objective of skill development training programmes.

Later Singh was offered to join BSDM course on pesticide and fertilizer applicator planned to be imparted at KVK. He was provided certificate of participation on successful completion of

the course. Participation in the course proved useful for Singh in farming so far proper use of pesticide and fertilizer was concerned. By joining the course, he also learnt about seed treatment.

The family members of Singh mainly cultivate paddy, maize, jute and oilseed in their three- acre farm land. Practical application of knowledge acquired through participation in course of pesticide and fertilizer applicator was subsequently started by him in farming. He ensured balanced use of pesticide and fertilizer besides also introduced practice of seed treatment.

Singh was able to increase farm output utilizing his knowledge. However with limited scope for increasing or diversifying farm activities, Singh wanted to do something else apart from farming to augment family income. He was in fact waiting for proper opportunity to start something else in addition to farming.

An opportunity to think something different came in his way in 2019, after Singh was informed by KVK scientists that a training programme on artificial insemination conducted by ASCI under skill development programme would be





organized by KVK.

He registered himself for participation in the course. Singh was given certificate of participation in the training programme on successful completion of the course. Had been receiving institutional support of KVK since he started farming, he was motivated by KVK personnel to use newly acquired skill of artificial insemination for increasing income.

He started work of artificially inseminating cattle stock in his village and also in adjoining villages as per suggestion of KVK personnel. At present Singh provides service in more than 40 villages located in 22 panchayats in his area. Acquiring knowledge of diseases prevalent in cattle and goats, with passage of time he has succeeded in diversifying services being provided him.

Singh provides preliminary treatment of diseases prevalent in cattle and goats. He has been providing other services such as vaccinating cattle and goats for prevention of diseases like FMD, HSBQ, PPR and Brucellosis beside service related to tagging of cattle stock.

Singh also remains associated with programmes organized at government level for vaccinating cattle stock. He has successfully increased his income diversifying livelihood sources. In fact life has become much better now for Singh.

He aims at further development of his skill as para vet service provider. Singh makes it a point to remain in touch with KVK personnel in order to ensure he remains updated with information concerning skill development opportunities. The KVK personnel had played significant role in success of Singh as para vet service provider.



Name: Manish Kumar Thakur

Age: 30Yrs

Venture: Plant nursery

Village: Phulwari

Panchayat: Chakla

Block: Kishanganj

District: Kishanganj

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan

Kendra, Kishanganj

CHANCE ENTRY IN PLANT BUSINESS BRINGS FORTUNE FOR YOUTH

For Manish Kumar Thakur it was matter of chance he raised nursery and took to business of supplying plants and planting materials. After completing graduation in 2012, he started looking for conventional employment opportunity. It was in 2015, Thakur was able to secure job of collection agent in a private company. Subsequently in same capacity Thakur worked

in another private company for some time. He however was dissatisfied with his job profile in the company. Dissatisfaction of Thakur contributed in his failure to meet expectations of his employer. Ultimately in 2017, he decided to quit his job.

While looking for alternative livelihood opportunity the idea of starting door to door sell of plants besides supplying planting materials struck his mind. He however had no previous experience of dealing in plants and planting materials.

Originally a native of village Bodhgaon in north Dinajpur district of West Bengal, Thakur used to stay with his maternal grandfather and grandmother at Phulwari village. He conceived idea of supply and sell of plants motivated by a relative involved in plantation work in West Bengal. Thakur investing Rs 15000 purchased plants from his said relative for starting his business.

His initial attempt of selling plants door to door in his village and in nearby Kishanganj town failed to yield desired result. Thakur could recover only Rs 7200 of the total amount he had spent on purchase of plants.

The loss however failed to discourage Thakur. He started supplying plants of Indian bay leaf and litchi at different places in Araria, purchasing



planting materials from Uttar Dinajpur and Siliguri in West Bengal. Supply of bay leaf and litchi plants earned Thakur profit of Rs 5000.

Diversifying his business, he subsequently started sell and supply of decorative plants besides plants grown in kitchen garden. Thakur was able to build working capital of Rs 70000 diversifying his business. At present he deals in sell and supply of 60-70 plant varieties including decorative and ornamental plants apart from nearly dozen plant varieties used for kitchen gardening.

Sell and supply of Erica Palm, a decorative plant in particular has helped Thakur build up working capital for his business. The Erica Palm costing between Rs 150-Rs 200 per plant generally sells at price between Rs 500-Rs 700 per plant. The plant is also supplied in hotels and commercial establishments by Thakur apart from households. He also provides services related to maintenance of Erica Palm in lieu of payment of charges. There are nearly 25 households and five major hotels in Kishanganj where service for maintaining Erica Palm is provided by Thakur. His net annual income is between Rs 1.5 lakh- Rs 2 lakh through sell and supply of plants besides services extended for maintenance of plants.

Though Thakur was able to financially consolidate his position through his business of





sell and supply of plants however he was keen on raising his own nursery in order to make his business more profit oriented.

For establishing nursery, in 2018 he took eight Katha land on lease in his village at annual rent of Rs 12000. He established contact with personnel including scientists of Krishi Vigyan Kendra (KVK) by this time. For Thakur his association with KVK proved useful in establishing nursery. He was extended required scientific and technical support for the purpose by KVK.

Thakur introduced cultivation of medicinal plants such as Aswagandha, Kalmeagh, Lemon Grass and Tulsi under guidance of KVK scientists following establishment of nursery. Taking into account high demand of medicinal plants he subsequently started cultivation of the plants also at his native village Bodhgaon.

Thakur who added sell and supply of medicinal plants in his business was able to increase his income substantially. His net income from sells and supply of medicinal plants is approximately Rs 1.44 lakh per annum.

Handholding support of KVK helped Thakur in acquiring skill of preparing vermicompost besides waste decomposition for purpose of waste utilization. In 2019, he was provided an opportunity to participate in a training programme organized at KVK on preparation of vermicompost.

Thakur who prepares vermicompost in his nursery earns approximately Rs 72000 annually through sell and supply of vermicompost. His cumulative income is more than Rs four lakh per annum taking together his earning from different livelihood related activities. Thakur aims at increasing his business further in future by ensuring sell and supply of plants in more households and commercial establishments.



Name: Chunchun Kumar

Age: 44 Yrs

Village: Ramnagar Bartara

Panchayat: Suari Immamnagar

Block: Ramgarh Chowk

District: Lakhisarai

Venture: Lathyrus farming

Educational qualification: Graduation

Institution facilitating venture: Bihar Agricultural University, Sabour

ADOPTION OF NEW LATHYRUS VARIETIES INCREASES PROFIT EARNING OF FARMER

Chunchun Kumar unlike number of other farmers had never totally discontinued farming of lathyrus, commonly referred as grass pea. He however had reduced cultivation of lathyrus to a great extent, well aware of the fact consumption of local grass pea is not safe for human consumption. A progressive farmer Kumar was not much interested in cultivation of lathyrus. However he continued limited cultivation of grass pea for purpose of utilizing rice fallow land and also for purpose of animal feed.

Kumar has 30-acre agricultural land. After graduating in 2002 he took up teaching job in 2005 at a government middle school located in Barhara village of Lakhisarai district.

However, he left job after two years and started farming primarily to ensure proper utilization of his agricultural land holding.

Kumar started cultivation of crops that used to be grown by his ancestors. Paddy and wheat were among main crops he started growing. Kumar alike his ancestors also used to cultivate grass pea to ensure proper utilization of rice fallow land.

Taking note adverse effects of grass pea consumption on human health, at one point of time he seriously started contemplating about total discontinuation of grass pea cultivation. It was almost at this time in 2018 he was informed by scientists of Krishi Vigyan Kendra (KVK), Hali and also by university scientists involved in implementation of Biotech Kissan Project that two new grass pea varieties namely Ratan and Prateek have been developed. They informed Kumar that new lathyrus varieties are totally safe for human consumption.

The Biotech Kissan Project being implemented in state since 2018 aims at promoting cultivation of new grass pea varieties. Funded by Biotechnology Department of union government, the Bihar Agricultural University (BAU) has been entrusted responsibility of implementation of the project.

Kumar was told by scientists that low ODAP content of Ratan and Prateek make the new varieties safe for human consumption. The scientists told him that instead of discontinuing

lathyrus farming he should try the new varieties. Motivated by scientists Kumar started cultivation of Prateek one of the new varieties in 2018.

As part of handholding support from KVK he was provided 25 kilogram seed of Prateek for beginning cultivation. Kumar associated with KVK for long time was also provided scientific and technical support in cultivation of new grass pea variety. He took up cultivation of the new variety in two bigha land. Kumar recorded six quintal yield in first year.

The KVK had offered to purchase his produce; he sold his total yield to KVK at rate of Rs 3700 per quintal. Net income of Kumar from farming of new lathyrus variety was quite encouraging taking into account his input cost of farming was approximately Rs 3000.

In fact, income of Kumar from farming of new variety was more compared to local variety. The year he started growing Prateek, the new lathyrus variety, he had also cultivated local variety in small area. While Kumar sold his produce from new variety at Rs 3700 per quintal, the sale of local variety produce fetched him Rs 3100 per quintal.

With enough reasons for him to discontinue farming of local variety, he stopped cultivation of local grass pea variety totally from 2018 onwards. In 2019 Kumar cultivated Prateek again in three acres land. He recorded 15 quintal yield

in succeeding year.

The buyback offer had been extended once again, Kumar sold his produce to KVK. Sell of his produce fetched Kumar further high return in second year as his yield was purchased by KVK at rate of Rs 4200 per quintal. The input cost of farming had hardly registered any increase compared to previous year; his net income was more in second year. Kumar was provided 80 kilogram seed by KVK again in second year for farming of new grass pea variety.

Encouraging return from cultivation of new grass pea variety led him take up cultivation of Prateek in total four acre land in 2020. Kumar again succeeded in reaping good harvest of grass pea. He was provided 180-kilogram seed of new variety by KVK in 2020. In order to popularize cultivation of the new variety, Kumar also made available seed to fellow farmers in his village from seed provided by KVK.

More than half a dozen farmers in his village cultivated new variety of grass pea in 2020. In recent years cultivation of Prateek the new grass pea variety has also picked up in Bartara village located close to village of Kumar. The number of farmers who have taken to cultivation of new grass pea varieties has increased considerably in the area since new varieties are being promoted for cultivation under Biotech Kissan Project.

Name: Raj Shekhar

Age: 42 Yrs

Venture: Katarni farming

Village: Desari

Panchayat: Bhawanipur, Desari

Block: Jagdishpur

District: Bhagalpur

Educational qualification: I. Sc.

Institution facilitating venture: Bihar Agriculture University, Sabour

DECISION OF MAINTAINING FAMILY LEGACY PAYS DIVIDEND TO FARMER

Raj Shekhar decided to continue farming of Katarni variety paddy, despite other better options, primarily because his family had been cultivating the variety since generation. A progressive farmer he was not in favour of discontinuing the tradition. Katarni farming was not that lucrative when in

2005 Shekhar started cultivation of the variety in his five-acre family agricultural land. However, fine grain quality and aroma of the variety contributed in his decision of continuing farming of the variety. For Shekhar continuing cultivation of Katarni was much alike maintaining family legacy.

An exclusive variety of this region, Katarni rice is among farm produce of state that have been provided GI tag. Jagdishpur block of this district is famous for production of the exclusive variety. Cultivation of Katarni is undertaken mainly in area located adjoining river Chandan passing through the block.

A most sought-after rice variety, Katarni faced qualitative degeneration with passage of time due to seed impurities. The qualitative degeneration in the variety had adversely affected aroma and yield of Katarni. In past Katarni growers in many cases had taken to cultivation of other paddy varieties because of varietal degeneration. Farmers failed to get desired return cultivating the variety due to qualitative degeneration.

The varieties that were adopted by farmers for cultivation in place of Katarni mostly looked alike Katarni. With higher yield the said varieties however are quality wise inferior compared to original Katarni.

In initial years Shekhar used to have approximately six quintal per hectare yield of Katarni. Sell of per quintal produce on an average fetched him Rs 2000. His gross income was Rs 60000 through sell of produce. Shekhar used to register little above Rs 30000 net income from Katarni farming.

In order to increase his income at one point

of time he also started contemplating about cultivation of other paddy varieties. Shekhar however continued farming of Katarni as mentally he was not ready to discontinue family legacy.

The Bihar Agricultural University (BAU) extending handholding support to Katarni growers had initiated Katarni refinement project few years back. The project aimed at restoring lost identity of Katarni apart from mitigating problem of growers. Original strains of Katarni were identified under the project in order to make available pure seeds of variety to farmers.

Following difficult selection process, the pure strain of the variety could be identified by scientists involved in execution of the project. The selection of pure strain led to release of Suddh Katarni in the year 2016. A research based effort for addressing problem of lodging witnessed in the variety has been also initiated by university.

The scientists of university involved in finding solution of the problem look forward to developing a dwarf strain of the variety soon. The Katarni paddy variety was provided GI tag in 2017 taking into consideration exclusiveness of the variety. In 2016 university had initiated process for GI registration of the variety.

During this time “Bhagalpuri Katarni Dhan

Utpadak Sangh” having Katarni growers of Munger, Banka and this district as members was constituted with BAU in role of facilitator. Promotion of premium quality rice was primary objective of the association.

Shekhar a key functionary of the association is among Katarni growers of Jagdishpur block in whose field demonstration farming had been taken up by BAU for production of Truthful Label (TL) seed under BAU-Farmer participatory mode.

As a key functionary of the association he has been keenly involved in ensuring organized marketing facility for growers of premium paddy variety. To certain extent the association has succeeded in ensuring organized marketing facility for growers after Katarni refinement project was launched by BAU.

Shekhar who grows Suddh Katarni is a happy man. Farming of pure strain of Katarni has increased his yield up to 12 quintal per hectare. The qualitative deterioration of the variety in past has been contained considerably after release of Suddh Katarni. Net income of Shekhar has increased compared to past.

Presently he is able to sell his produce at Rs 4000 per quintal. Shekhar who also does farming as share cropper has been cultivating Katarni in total six acre of land since last few years. On



average he produces 72 quintals Katarni variety paddy. His gross income is around Rs 2.88 lakh per annum through sale of the exclusive variety.

Excluding input cost Shekhar has no problem in registering net income slightly above Rs two lakh per annum by growing Katarni. His earning is more when he prepares rice by milling his produce and sells it in market. Since 2019 Shekhar has started organic farming of Katarni. Last year he had taken up organic farming in half acre of land.

Shekhar who harvested nearly two quintal yield of organic Katarni this year is hopeful he would have no problem in selling his organic produce with price tag of Rs 6000 per quintal. He intends to increase organic Katarni farming in future.

As per Katarni growers of Jagdishpur block, the total area of block under Katarni cultivation had reduced sharply in past. However, after release of Suddh Katarni the total area under Katarni cultivation has increased sizably. The variety is presently being cultivated in nearly 700 acres in Jagdishpur block as per a rough estimate. The farmers who had discontinued Katarni farming in past have revived farming of the variety in number of cases.

A man in a green sweater is standing in a dairy farm, feeding cows. He is holding a large blue bucket filled with feed. The cows are lined up in a long trough. The farm has a white wall and a metal roof. There are windows in the background.

Name: Subodh Kumar Singh

Age: 48 Yrs

Venture: Dairy Farming

Village: Kharkhura

Panchayat: Kujapi

Block: Nagar Chanduati

District: Gaya

Educational qualification: BA, LLB

Institution facilitating venture: Krishi Vigyan Kendra, Manpur, Gaya

ENTREPRENEURIAL KNACK OF LAW GRADUATE LEADS HIM TO DAIRY FARMING

Subodh Kumar Singh, a successful dairy farmer of Gaya district has no remorse have taken up dairy farming as livelihood occupation leaving secured job opportunity in government sector. At this juncture of life when he has established himself firmly in dairy business and has nothing to look back, Singh is proud of having taken right decision in appropriate time.

Driven by entrepreneurial knack, it was in 1998 he started dairy farming with three cows. At present he has 100 cows and 25 buffaloes. In fact, Singh had no previous experience of dairy farming apart from the fact his family used to rear few cows to meet milk requirement of family members.

Though he had no specific choice related to livelihood occupation while he was studying however, he had entrepreneurship somewhere in back of his mind. As majority of his family members were employed in organized sector there was parental pressure on him to look for job opportunity in government sector.

Singh who engaged himself in preparation of

competitive examination managed to crack some of the examinations between 1995 and 1998 including examination held for post of assistant commandant in CRPF and PWI (Permanent Way Inspector) in railways.

However, he did not take up jobs for which he was selected and finally decided to pursue his desire of becoming entrepreneur. Singh started dairy farming in 1998 at village Kujapi located close to village Kharkhura where he resides with his family.

He started dairy project with three cows owned by his family. The one bigha land belonging to family of Singh at village Kujapi was used by him for establishing dairy. Assisted by Shashi Ranjan Singh, his younger brother he started the venture.

In fact, training opportunity in dairy farming provided to Singh by Krishi Vigyan Kendra (KVK), Manpur primarily contributed in his decision to start dairy farming as livelihood occupation. Looking for a trade that could help establish him as successful entrepreneur, Singh

could firmly decide about starting dairy business following KVK training.

The KVK also extended him required technical and scientific support in starting the venture. The handholding support of KVK for Singh is continuing since he started his project. His previous experience of looking after cows owned by his family helped Singh in establishing his venture.

After starting with three cows in 1998 he subsequently purchased 10 more cows. Rolling his profit earning Singh kept on increasing number of cows and buffaloes and also procured machines and gadgets needed for scientific management of dairy farm.

The cattle stock of Singh includes HF cross, Jersey cross, Sahiwal and Red Sindhi breeds. He also has a breeding bull of HF breed for upgrading his low productive cows. Dairy farm of Singh has required facility of artificial insemination and providing first aid to cattle stock in case of need.

He has conceived unique number system for

maintaining pedigree of his cattle stock. The number system conceived by Singh has proved useful for him in carrying out practices essential for scientific management of dairy. He has installed CCTV cameras in his dairy for proper management of dairy activities.

Further there is central milking, chiller machine and fogging machine in dairy farm of Singh. Use of machines in preparation of balanced feed for cattle stock in his farm, has helped him improve quality of milk and thereby increased his profitability.

On an average 800-900 litres of milk is produced daily at dairy farm of Singh. Of total milk produced in his dairy nearly 250 litres are supplied door to door in 150 households of Gaya town located at radius of eight kilometre from his dairy. The remaining milk is supplied in bulk to food outlets, hotels and restaurants.

Singh also produces nearly 30 kilogram of paneer in his dairy for supply to food outlets, hotels and restaurants. In order to ensure purchasers could be reached milk safely maintaining quality and required temperature, he uses container made of thick gauge metal.

Singh has provided employment including permanent and part time employment to total 14 people for dairy works and milk supply. Singh on an average registers' gross turnover of Rs 70

lakh per annum from dairy business. He looks forward to establishing milk chilling plant in future besides launch milk products with brand name of his dairy.

Singh received national dairy award in 2011 for his devotion and hard work in field of dairy farming. His hard work has been also acknowledged by Bihar Agricultural University (BAU). Singh was given best farmer award in past at Kissan Mela held in BAU.





Name: Ranjan Kumar Suman

Age: 57 Yrs

Venture: Farm Machine Bank

Village: Barhari

Panchyat: Sonudih Satjori

Block: Goradih

District: Bhagalpur

Venture: Farm mechanization

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Sabour

FARM MECHANIZATION HELPS FARMER REWRITE FATE

It had not been easy for Ranjan Kumar Suman to decide about mechanized farming. He used to practice conventional farming previously. The move of introducing mechanized farming proved tough for Suman in light of the fact he was first to initiate process of farm mechanization in his village.

With majority of fellow farmers not conducive to his idea, he was initially slightly hesitant so far going ahead with his decision was concerned. However Suman decided to stick to his plan realizing need of the hour. Majority of fellow farmers with whom he shared his idea were of the view that mechanized farming would lead to major problem of weed infestation in his field.

The process of farm mechanization initiated by Suman in 2011-12 is paying him dividend at present. In fact, farm mechanization has proved doubly beneficial for him. Apart from augmenting farm income he has also established farm implements bank. After graduating in 1987, Suman started looking for conventional job opportunity. He took charge of family farm activities in 2005 following unsuccessful job hunt. Agriculture had been main livelihood source of his family. Suman used to assist his father in farming even before he decided to engage himself completely in agricultural activities.

Family of Suman having agricultural land holding of approximately 20 acres used to grow mainly paddy, wheat and lathyrus. After taking charge of family farm activities, he also started cultivation of the crops his family used to grow. Things however were proving difficult for Suman in financial front with his net income remaining restricted to approximately rupees one lakh per annum taking together income from farming and diary business.

His net income was barely sufficient for fulfilling needs of his family members. Financial problems of Suman aggravated further in 2009 following health problems. He was unable to involve himself in farm activities for nearly two

years because of renal complications.

Responsibility of farming was entrusted to share croppers by Suman, during the period. His decision to entrust responsibility of farming to sharecroppers did not work properly. Sharecropping failed to yield desired return and also led to complications. Suman was a worried man. However, by grace of God health issues that had forced him to abstain from agricultural activities were over by 2011.

Suman took charge of farm activities once again following his recovery. However, there was no let-up in his financial problems. It was during this time he came in contact with scientists and personnel of KVK, Sabour. After giving patient hearing, the KVK experts unanimously suggested Suman that he needs to reduce input cost of farming to better his income.

They advised him for direct seeding of crop and also provided him required technical support for the purpose. The suggestion and advice of experts proved to be turning point in life of Suman. He had been toying with idea of mechanized farming for quite some time. Suman decided to initiate process of mechanization at the earliest in light of advice of KVK experts.

Through mechanization he intended at reducing cost of farming apart from minimizing his dependence on farm labourers. It was for the first

time in 2011-12, Suman applied direct seeding method in paddy cultivation.

KVK which stood by him all through his endeavor of mechanizing farm activities arranged a zero-tillage machine for him available at Bihar Agricultural University (BAU), Sabour.

Initially mechanized sowing of paddy variety Rajendra Sweta was undertaken by Suman. He recorded yield of 42 quintal per hectare in directly sown paddy. The yield was almost 60 percent more compared to yield of paddy grown through conventional method.

Initiation of mechanized farming proved highly encouraging for Suman taking into account he had total 320 quintal yield from paddy grown in 20 acre land. He registered net income of Rs two lakh from paddy farming undertaken through direct seeding method.

Less expenditure incurred by Suman in irrigating directly seeded crop besides reduced labour cost significantly contributed in increasing his net income. However, in next two successive year things did not turn out to be that lucrative for Suman due to low rainfall in paddy season. In absence of proper rainfall, he had to experience problem of weed infestation in his field.

He however did not discontinue zero tillage farming. Suman subsequently purchased Tractamount Sprayer, Heavy Tractor of 60 HP,

Laser Land Leveler, Raised Bed Planter, Multi Crop Zero Tillage Machine, and Drum Seeder besides several other machines to increase mechanized farming. Majority of these machines were purchased by him availing subsidy given by state government. Following farm mechanization annual net income of Suman continue to remain on higher side despite the fact he has only five acres of land at present.

His annual net income is approximately Rs three lakh from cultivation of Kharif crop and Rs 1.5 lakh from Rabi crops. Mechanized farming has helped him reduce sowing cost to extent of Rs 7000 per acre and harvesting cost to extent of Rs 2000 per acre in case of majority crops.

Suman, earns Rs five lakh per annum renting out his machines to other farmers who in number of cases have started practicing mechanized farming. Last year he formally established a farm implements bank bearing name RK Krishi Yantra Bank.

KVK extending handholding support to Suman played pivotal role in establishment of his farm implements bank. Machines in his bank is high in demand with sizable number of farmers in other adjoining villages in his area apart from his native village have also adopted zero tillage technique. Suman looks forward to further strengthen his farm implements bank.





Name: Binesh Prasad

Age: 46 Yrs

Venture: Onion farming

Village: Kamalpur

Panchayat: Biman

Block: Ariyari

District: Sheikhpura

Educational qualification: Postgraduate

Institution facilitating venture: Krishi Vigyan Kendra, Sheikhpura

OPTING FOR AGRICULTURE MAN ENSURES QUALITY LIFE

Though conventional employment continues to remain preferred choice in most cases however there are people who look for doing something unconventional for livelihood. Binesh Prasad is among such people who dare to skip conventionality in order to do something different for livelihood.

At present a progressive farmer, he had an opportunity to take up job of assistant sub-

inspector of police in past. However, Prasad decided to make agriculture his source of livelihood. After qualifying for job of assistant sub inspector of police in 1988 he could realize temperamentally he was not suited to do conventional job.

Prasad having inclination for farming joined family farm activities after completing his post graduation. He is youngest among five siblings.

Family of Prasad owns nearly 100 acres of agricultural land. Apart from paddy and pulses his family undertakes cultivation of onion.

In fact, onion is among major crop cultivated by family of Prasad. Soil composition of Sheikhpura district is ideally suited for growing onion. Onion cultivation is undertaken by family of Prasad in nearly 30 acre land. His family is also involved in business of supply and marketing onion. Family of Prasad supplies their produce at places in neighbouring country Bangladesh apart from different places within the country. Farming and business is undertaken jointly by family members. Family of Prasad is among major onion stockist of Sheikhpura district.

In Sheikhpura district onion cultivation is undertaken in more than 250-hectare land. Though onion is cultivated in both Kharif and Rabi seasons however in Sheikhpura district maximum cultivation is undertaken by farmers in Rabi season. A full timer in agriculture, Prasad has successfully increased area under onion cultivation in family farmland. Handholding support of Krishi Vigyan Kendra (KVK) significantly contributed in his success. He cultivates onion in nearly 30-acre land at present while in the past he used to grow onion in approximately 12-acre area. At present Prasad mainly cultivates Zirat variety of onion

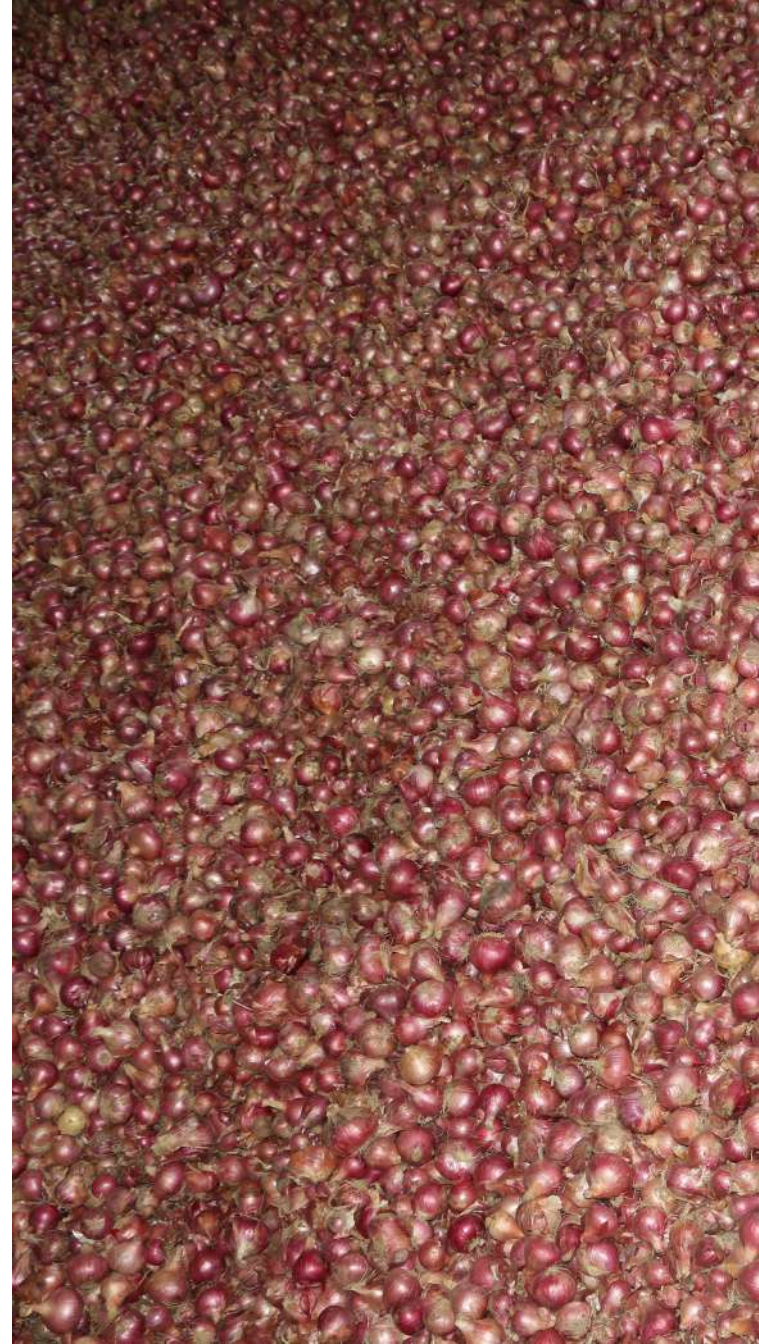
commonly referred as CV -Sukhsagar. Earlier he used to cultivate Beloria, a local variety.

He adopted the variety because of certain problems in local variety besides also taking into consideration quality and yield wise Sukhsagar is relatively superior variety. Compared to nearly 220 quintal per hectare yield of Beloria the yield of Zirat or Sukhsagar as it is commonly referred is approximately 240 quintal per hectare.

Cultivation of Sukhsagar also involves less expenditure compared to Beloria variety of onion. While cost of cultivating Sukhsagar is approximately Rs 71000 per hectare, it is around Rs 80000 per hectare in case of Beloria. Similarly, cultivation of Sukhsagar variety fetches more gross income for farmers compared to cultivation of Beloria variety.

As per a rough estimate while gross income from cultivation of Beloria in one hectare area is Rs 1.98 lakh it is around Rs 2.16 lakh in case of Sukhsagar variety grown in one hectare area. The shelf life of Sukhsagar variety is also stated to be more compared to Beloria variety.

Sukhsagar a popular variety of West Bengal was adopted by Prasad after he came to know





about the variety from one of his brothers who stays at Kolkata. His brother who looks after supply and marketing business of family at Kolkata could know about the variety from some onion growers of West Bengal.

Procuring seed of the variety from West Bengal he started cultivating Sukhsagar variety on trial basis. Prasad started large scale cultivation of the variety in light of encouraging result of trail farming.

He incurs expenditure between Rs 1-1.50 lakh for cultivating onion in one hectare area. Prasad has been registering yield between 250-300 quintal per hectare in ideal condition. Depending upon prevalent market rate his on an average annual net income is between Rs 25-50 lakh from onion cultivation.

In addition to his own produce Prasad also purchases produce of other onion growers of his area to build stock of onion during season. He generally stocks more than 200 tonne onion during season for supply and marketing.

Taking together income from farming and business, annual turnover of Prasad is around Rs five crore. However, there are variations in annual turnover depending

upon crop prospect and subsequent market trend. Overall Prasad has succeeded in augmenting his cumulative income substantially since the time he opted agriculture as full-time occupation.

His cumulative annual income was Rs 10 lakh when he started farming and joined family business. The KVK, Shiekhpora contributed significantly in increasing farm output of Prasad. The valuable guidance provided by KVK experts helped him maintaining quality in supply and marketing of onion.

Prasad whose association with KVK started in 2007, learnt about scientific cultivation of onion participating in training programme organized by KVK. Scientific cultivation helped him in increasing production. Prasad also learnt about grading, packaging and branding of his produce interacting with scientists and other personnel of KVK. The knowledge of grading, packaging and branding of his produce helped him in ensuring business growth. Further, on advice of KVK experts he started exploring possibility of farm mechanization. Prasad has been using rotavator, a machine used for breaking or tilling soil.

Use of rotavator has helped him ensure soil condition suited for onion cultivation. Prasad aims at further increasing area under onion cultivation besides in future he intends to increase his dependence on machine for farming.

Name: Ashok Kumar Choudhary

Venture: Nursery and Mango Farming

Age: 59 Yrs

Village: Maheshi

Panchayat: Maheshi

Block: Sultanganj

District: Bhagalpur

Educational qualification: B. Sc, LLB

Institution facilitating venture: Bihar Agricultural University, Sabour



GROWER EARNS SOBRIQUET OF MANGO MAN FOR PRODUCING QUALITY FRUITS

Mango Grower Ashok Kumar Choudhury needs no introduction among mango lovers in this region. In Bhagalpur and other adjoining districts of Eastern Bihar he is widely known for his quality mango produce.

Choudhury is among major grower of Jardalu, an exclusive mango variety of this region. He

also grows number of other popular varieties. However, Choudhury is best known for his quality produce of Jardalu. The local mango variety is famous for its lusciousness and aroma. Jardalu is among agro products of state that have been provided GI tag.

Taking together old and new there are nearly



300 Jardalu trees in orchard of Choudhury. It is from his orchard quality fruit of selected size is procured by local administration every year for preparing Jardalu gift packs. The Jardalu gift packs are sent to dignitaries including President of India by state government every year during summer season. Choudhury who graduated in both science and law faculties has an agrarian background. He was born in a family that primarily depended on agriculture for livelihood. Choudhury joined physical training course after completing graduation in 1986. Subsequently on completion of training course he took up job of physical instructor in a private school. He left the job after serving for a brief period. Though Choudhury had some other employment opportunities however he never relished doing conventional job. With agriculture somewhere in back of his mind, he finally decided to get back to his roots. Initially Choudhury was not sure about future course of action. Cultivation of paddy and wheat was not providing him return to desired extent.

Choudhury had to face financial constraints due to inadequate family income. His family had to often sell piece of land for fulfilling general needs apart from performing family rituals like marriage and last rites. Hence Choudhury wanted to take up agricultural activities that could help augment his income.

His father who used to grow conventional crop had a small mango orchard in a portion of his 10-acre agricultural land. After opting agriculture as livelihood in 1992, Choudhury established nursery besides started enriching orchard located in agricultural land that he inherited from his father. He utilized three acres area of his land holding for establishing nursery. Choudhury decided to establish nursery as he felt afforestation around agricultural land in long run could be an asset that could be utilized in time of need. Interest in growing saplings also contributed in his decision. He felt similar move of afforestation could prove beneficial also for small and marginal farmers. Instead of selling their land they would be able to fulfil their monetary needs from trees if they go for afforestation, he believed. The scientists besides other personnel of Bihar Agricultural University (BAU) provided Choudhury valuable guidance in establishing nursery. He had been in contact with BAU scientists since time he

opted agriculture as livelihood. Choudhury learnt technique of grafting from scientists. In fact, handholding support of scientists helped him immensely in establishing nursery. Initially he started preparing plants of wood bearing trees apart from mango trees. In course of time, he enriched his nursery. At present Choudhury is also preparing plants of sandalwood tree. Apart from motivating farmers of his village for afforestation, he has provided them saplings of tree at concessional rate for the purpose. People of adjoining districts also purchase plants from nursery of Choudhury. His nursery has rich stock of plant varieties. Choudhury has prepared new planting materials of recognized mango varieties with assistance from scientists and other personnel of Bihar Agriculture University. Some new planting materials developed in recent past have been named by him Lockdown besides Modi -1 and Modi -2. Choudhury has preserved more than eight rare Biju variety of mango by preparing sapling of the varieties in his nursery. In past Biju variety of mango was used to be grown extensively in this part of state. The new planting material “lockdown” has been prepared by him grafting Apple mango and Biju variety trees. Similarly, new planting materials Modi-1 and Modi-2 have been prepared by Choudhury respectively from recognized varieties Malda

and Hemsagar besides Gulabkhas and Irwin (a foreign variety). He has more than 300 plant varieties in his nursery. On an average his annual gross income from nursery is approximately Rs 10 lakh. As per Choudhury his gross income from nursery varies every year. It is due to flood in his area almost every year there is variation in gross income, he says. Choudhury grows more than 60 quintal mango each of Jardalu and Malda varieties besides 200 quintal mango of other varieties including Bombai, Himsagar, Dussehri, Gulabkhas, Amrapali and Mallika. His annual net income is more than Rs 4 lakh from mango orchard. Choudhury has been replacing old mango trees particularly those of Jardalu varieties with new trees. So far he has planted 200 new trees. He is hopeful; in future his total produce of Jardalu mango every year would be nearly 150 quintals after all new trees start bearing fruit. Choudhury, president of Bhagalpuri Jardalu Aam Utpadak Sangh is actively involved in popularizing exclusive mango variety of this region by organizing growers. The association of Jardalu growers with assistance of BAU and agriculture department aims at ensuring greater presence of the variety in domestic market. The association has also initiated efforts for exploiting export potential of Jardalu.





Name: Aswani Kumar Verma

Age: 50 Yrs

Venture: Groundnut Farming

Village: Subhankarpur

Panchayat: Rahikpur Thila Mohan

Block: Forbesganj

District: Araria

Educational Qualification: MA (Economics)

Institution facilitating venture: Krishi Vigyan Kendra, Araria

SUCCESSFUL FARMING OF GROUNDNUT BRINGS ECONOMIC PROSPERITY FOR GROWER

There were few involved in groundnut farming at Subhankarpur village when Aswani Kumar Verma started groundnut cultivation. A native of the village he started groundnut farming in 1980. It was in 1972-73, groundnut farming was introduced at Subhankarpur by father of Verma. Father of Verma had been associated with



groundnut cultivation for quite long time at Myanmar. Utilizing his experience he started cultivation of groundnut at Subhankarpur. Verma successfully carried forward groundnut cultivation. He is among major groundnut grower in his village.

A prosperous farmer, he has successfully increased area under groundnut cultivation in recent year. Verma has also helped popularize groundnut farming in his village. His expertise has benefitted nearly 50 farmers already involved in groundnut farming. Motivated by his success farmers in number of cases have started groundnut farming in his village.

Subhankarpur has become hub of groundnut production in period of slightly more than a decade since farming of groundnut was introduced in village. Out of total 350 acre land groundnut cultivation is undertaken in approximately

300 acres land at Subhankarpur. Verma presently cultivates groundnut in 1.5 acre area in his 3.5 acre agricultural land holding.

His annual net income is approximately Rs 140000 from groundnut farming. Verma incurs input cost of Rs 40000 on cultivation. His earning from groundnut farming was not that lucrative in past. In absence of desired return, family of Verma at point of time had discontinued groundnut farming for nearly half a decade.

Full- fledged groundnut farming was however subsequently revived by Verma after he took charge of family farm activities. Everything was not that easy for him initially. His journey to prosperity after modest beginning was marked by several hurdles.

Handholding support of KVK, Araria, helped Verma immensely in overcoming the hurdles. The KVK involved in promotion of groundnut farming in the area held demonstration and organized training programmes for farmers. Participation in demonstration and training programme helped Verma significantly in selection of yield wise superior variety of groundnut.

He was provided total two kilogram seed of eight groundnut varieties by KVK in 1990 for experimental farming. Following experimental farming, Verma found yield of BH-86 was more

compared to other varieties. Identification of variety having comparatively more yield helped him in increasing his total produce.

Verma subsequently started cultivation of BH-86 variety. He recorded yield of 22-23 quintal per acre, in portion of his farmland having soil composition ideally suited for groundnut cultivation. In portion of his farmland having soil composition less suited for groundnut cultivation, Verma had yield to extent of 17 quintal per hectare.

The yield of groundnut variety he used to cultivate previously was restricted between 7-10 quintals per hectare. In order to help increase production, total 32 groundnut growers of his village were made available two kilogram seed each of high yielding variety by Verma.

A pioneer among groundnut growers of Subhankarpur, he intends to popularize groundnut cultivation in his area. Initially net income of Verma was less than Rs one lakh per hectare from groundnut farming. However he sizably increased his per hectare net income subsequently. During last three years on an average he has ensured 25% increase in his income from groundnut cultivation.

Groundnut farming has proved to be lucrative venture for Verma. He plans to increase area under groundnut cultivation in future. The KVK

had played pivotal role in increasing profit earning of Verma from groundnut farming. Participation in training programme organized by KVK helped Verma learn technicalities of groundnut farming. Knowledge of technicalities proved useful in increasing his income.

Scientific and technical assistance provided by KVK experts helped Verma in successfully overcoming problems of groundnut farming. He also received training related to animal husbandry and horticulture at KVK. Verma has been supplementing his income by rearing buffaloes and growing vegetables.

He has total four buffaloes. Net annual income of Verma is Rs 20000 from milk production. He received Kissan Shree prize of Bihar government in 2007 for his innovative idea of beginning groundnut farming. His innovative approach in agriculture has been also acknowledged by Bihar Agricultural University, Sabour.

Cultivation of groundnut is now also being undertaken in Raniganj and Narpatganj blocks apart from Forbesganj block of Araria district following popularity of groundnut farming in the area. In recent years groundnut cultivation has also picked up in particular areas of Purnia and Supul districts.





DECISION TO TAKE RISK PROVES RIGHT FOR BUSINESS ADMINISTRATION GRADUATE

His decision to try luck in agriculture unlocked door of success for Abhishek Kumar. After graduating in business administration in year 2011 from a college in Pune, he bagged a job of attractive pay package.

However, unlike other youths of his age Kumar wanted to do something unconventional. Ultimately, he decided to take a chance in agriculture. Kumar was motivated to take up agriculture as livelihood occupation in light of the fact farming had been primary occupation of his family since long.

Leaving secured carrier for pursuing an occupation that is full of uncertainties, was not an easy decision for him. Decision of Kumar to take risk for achieving something more worthy proved to be right in due course.

Back in his village, he joined his father in farming who had been looking after farm activities of family. In 30 bigha agricultural land holding, the family used to cultivate mainly paddy. Wheat and pulses were among other crops cultivated by family of Kumar.

Looking forward to infuse changes in farming pattern being followed by his family he suggested introduction of floriculture in family farmland after joining farm activities. For the purpose

Name: Abhishek Kumar

Age: 34 Yrs

Venture: Integrated farming

Village: Barauli

Panchayat: Pipra

Block: Barun

District: Aurangabad

Educational qualification: Bachelor in Business Administration

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Aurangabad

Kumar suggested reduction of area under paddy cultivation. He intended to start integrated farming infusing changes in conventional farming pattern. Suggestion of Kumar regarding reduction of area under paddy cultivation though did not find immediate acceptance in family however his father subsequently agreed to his suggestion.

As per his suggestion approximately 20-22 bigha of land in family agricultural holding was marked for floriculture. There goes an adage new beginning is never easy. For Kumar also starting new venture was not easy. Kumar had to overcome number of initial hurdles before he could start ground level execution of his plan.

It was this time he started receiving all required support from KVK, Aurangabad to push forward his venture. The scientific and technical support extended by KVK proved crucial for Kumar in beginning mentha, gladiolus and tuberose farming. KVK intervention significantly helped Kumar in overcoming early hurdles.

In initial years he was able to register quite encouraging return from mentha, gladiolus and tuberose farming. Kumar was able to secure net income of Rs 112000 having incurred expenditure of Rs 70000 in mentha farming. He further increased his profit earning in subsequent years. Handholding support of KVK played

significant role in his success.

Against production cost of Rs 124365 his net return was Rs 225903 from gladiolus farming. Similarly, Kumar was able to ensure high profit earning growing tuberose. His net income from tuberose farming was Rs 68062 against Rs 30835 input cost of farming. Scientific knowhow besides technical guidance provided by KVK scientists helped Kumar significantly in establishing himself firmly in field of floriculture. The initial success motivated him to take up farming of more flower varieties as well as medicinal plants. Kumar subsequently started farming of Gerbera, Lilium, Hibiscus Arhul, and Gypsophila besides other flower varieties apart from Artemisia and Holy Basil plants, known for their medicinal value.

Kumar never looked back since he adopted integrated pattern of farming. In order to further diversify farm activities he started fish farming in due course with KVK support. Kumar started farming of pangasius fish in a pond spread over half acre land. Having incurred expenditure of Rs 90128 his initial net income was Rs 215872 from fish farming.

With KVK assistance he has also succeeded in increasing his income from cultivation of conventional crops like paddy, wheat and lentils. Following KVK intervention his net return

from paddy farming has increased to Rs 299200 currently from Rs 187000 in past. The scientific and technical assistance provided by KVK scientists has also helped Kumar in increasing his annual net income from cultivation of wheat and lentils.

Starting with overall gross income of Rs three lakh in 2012, his current annual gross income has increased between Rs 15 to Rs 16 lakh per annum. Bracketed among progressive farmers of his area Kumar has established a farmer's producer company. He is a source of inspiration for people of his area. Particularly those in younger age group consider Kumar as their role model.





Name: Amresh Singh

Age:38 Yrs

Venture: Farming of medicinal and aromatic plants

Village: Karamdih

Panchayat: Majhiyawa

Block: Navinagar

District- Aurangabad

Educational qualification: I. SC

**Institution facilitating venture: Krishi Vigyan Kendra
(KVK), Aurangabad**

FARMER TACKLES BLUE BULL MENACE IN DIFFERENT WAY

A problem approached in a different way could at times lead to effective as well as lucrative solution. At least this has come true in case of Amresh Singh. His different approach for tackling blue bull menace helped him in overcoming the problem effectively besides also proved useful in augmenting income.

Singh used to grow mainly paddy, wheat and vegetables in past. After completing intermediate level education in 2011-12, he started farming in 20 bigha agricultural land holding of family. Otherwise, everything was fine for Singh initially. However his growth in agricultural front subsequently received serious jolt due to blue bulls. Singh had to suffer huge crop loss because of the antelopes at time he was trying to firmly establish his foothold in farming. The blue bulls used to damage and also eat up his standing crop.

For Singh continuing farming was proving difficult as he was unable to prevent invasion of blue bull in his agricultural holding. Utterly dejected over blue bull menace, at one point of time he seriously started contemplating about doing something else for livelihood other than farming. Subsequently Singh decided to quit farming and migrate to Delhi for earning livelihood. At Delhi he started working in a private company. One day in course of informal chat with supervisor at his work site he told him about reason that forced him to leave his native village and come to Delhi for earning livelihood. The supervisor suggested he should start farming of aromatic and medicinal plants to keep away blue bulls from his farmland. Medicinal and aromatic plants distract antelopes, the supervisor told Singh. He returned to his village in 2013 to start farming of medicinal and aromatic plants, taking into consideration what supervisor at his work site had told him. However Singh had no previous experience of cultivating medicinal and aromatic plants. He wanted to learn techniques of growing medicinal and aromatic plants. It was at this time he came to know that techniques of cultivating medicinal and aromatic plant could be learnt at CISR- CIMAP (Central Institute of Medicinal and Aromatic Plants), Lucknow. Singh decided to join CISR-CIMAP

training programme on farming of aromatic and medicinal plants. The KVK, Aurangabad providing him all required support in starting his new venture, helped him in completing necessary formalities for joining training programme. Arranging planting materials of aromatic and medicinal plants for beginning cultivation was a major problem Singh had to come across on successful completion of CISR-CIMAP training programme. The KVK scientists extending him handholding support tried their best to sort out his problem. Singh was subsequently introduced with a farmer of Tiluthu village in Rohtas district by KVK authorities in order to help him arrange planting materials of medicinal and aromatic plants. The said farmer was already involved in farming of aromatic and medicinal plants. Though interaction with Rohtas farmer helped Singh in learning finer points of farming however his problem related to availability of planting materials by and large remained unresolved. The concerned officials of KVK keen on resolving his problem further approached CSIR-CIMAP at Lucknow to explore possibility of making him available planting materials under aroma mission, a government scheme. The KVK initiative helped Singh receive planting material under aroma mission. It was in 2015 he started cultivation of medicinal and aromatic plants.

Singh registered net income of Rs 4.5 lakh in first year he started farming of medicinal and aromatic plant. He has expanded his venture in recent years. Singh is also involved in share farming of aromatic and medicinal plants. He undertakes share farming in land holdings of other people located at different places. Singh also undertakes cultivation of paddy, wheat and chickpea, black paddy and black wheat in a portion of his farmland. His on an average net income is Rs 15 lakh per annum taking together his earning from cultivation of conventional crops besides medicinal and aromatic crops. Profit earning of Singh from cultivation of conventional crops as well as medicinal and aromatic plants has increased sizably in recent years as result of KVK intervention. He presently grows lemon grass, palmarosa grass, basil, menthol mint and citronella among aromatic and medicinal plants. Singh is among pioneers in his area who introduced and helped popularize farming of medicinal and aromatic plants. Involving other growers of medicinal and aromatic plants he looks forward to establishing producer company of farmers. Singh also has plan of establishing production unit of menthol mint crystal. He has discussed his plan with KVK officials. Singh has been assured all possible support by KVK officials in execution of his plan.



Name: Arjun Singh

Age: 38Yrs

Venture: Vegetable farming

Village: Masona

Panchayat: Amethi

Block: Sanjouli

District: Rohtas

Educational qualification: Intermediate (Arts)

Institution facilitating venture: Krishi Vigyan

Kendra (KVK), Rohtas

ORGANIZATIONAL CAPABILITY OF GROWER MAKES VEGETABLE FARMING LUCRATIVE

His ability to look into the problems in a wider perspective helped Arjun Singh increase his income from vegetable farming besides also helped other horticulturists in his area increase their respective income.

A prosperous farmer at present, Singh had a modest beginning. He started farming in his one- acre agricultural land holding in 2006 after completing intermediate level education. Because of limited resources, he was forced to discontinue study after intermediate. With limited livelihood options, Singh subsequently started farming.

Initially pursuing agriculture was also not easy for him because of resource constraint. However, this did not deter his spirit. Despite odds

Singh always thought about making it big in field of agriculture. As his land holding was not big enough, he took additional land on lease for beginning moderately large-scale farming of vegetables. Though Singh could grow vegetable in sufficient quantity however his income from vegetable farming was not up to his expectation. With knack for looking into the problems in larger perspective he started identifying reasons behind low profit earning of vegetable growers. He could realize dependence of vegetable growers on middlemen in most cases for selling their produce was main reason behind low income.

Singh started exploring possibility of organizing farmers for addressing the problem. He looked forward to forming farmers group for ensuring produce of vegetable growers could be directly reached to bulk buyers instead of depending on middle men. Singh shared his plan of forming farmers group with officials and other personnel of KVK, Rohtas. He had been in contact with scientists and other personnel of the institution since he participated in Kissan Chaupal organized by KVK at his village. Singh having handholding support of KVK, was provided knowhow related to scientific farming of vegetables in past by the institution. His idea of cutting involvement of middlemen in sell of farm produce received KVK support.



A farmers group named “Krisak Het Samuh, Masona” was formed by Singh in 2009 with support of KVK and ATMA. The group initially having 25 members started exploring possibility of having direct link with local market beside markets at other places. The members of the group who mainly grow tomato were interested in dealing directly with bulk purchasers of tomato. Singh could ensure real breakthrough for his group in course of participation in a training programme on “formation of marketing linkages” organized at KVK, Rohtas by National Institute of Agricultural Marketing (NIAM), Jaipur. At behest of NIAM resource persons, Singh was able to establish contact with bulk purchasers at Delhi, Meerut and Kanpur. A particular bulk purchaser of Meerut agreed to lift tomato grown by Singh and his group members from their village on condition group members will have to ensure supply of minimum three hundred carats of tomato. Singh and his group members never looked back since they sold their produce to bulk purchaser of Meerut. At present from almost all major cities of country, bulk purchasers visit Masona and other adjoining villages for purchasing tomato. The membership of the group has increased considerably in recent years with vegetable growers of adjoining villages have also joined the group. The success

of Krisak Hit Samuh in establishing market linkages led Singh form another similar farmer’s group “Pragatesheel Kissan Club” at district level with NABARD and KVK support. The Krishak Hit Samuh and Pragatesheel Kissan Club taken together registered income of Rs 1.2 crore in 2019 through sell of tomato. Previously when Singh had to depend on middlemen, his net income used to be between Rs 20000 to Rs 25000 from seasonal sell of tomato. His net income from seasonal sell of tomato is between Rs 3.00 lakh to Rs 3.5 lakh at present. Tomato farming has increased manifold in Masona and other adjoining villages in recent years as result of success achieved by farmer groups in establishing linkage with markets located in different parts of country. In Masona village alone tomato is cultivated in more than 200 acres

of agricultural land. The area is now better known as tomato hub of Bihar. The tomato growers have been provided knowhow related to off season utilization of land and mixed farming by KVK. Vegetables like cauliflower, cabbage, ladies’ finger and bitter guard is also grown extensively in the area. Other vegetables apart from tomato are also procured in bulk by purchasers of different places from farmer groups formed by Singh. Farming of different types of vegetables including tomatoes has been popularized in the area by KVK. Particularly farming of those vegetables are being encouraged by KVK that incur less damage in long distance transportation and are suitable for cultivation in the area. The KVK initiative has increased overall vegetable production in Masona and its adjoining villages.





Name: Chandan Kumar Jha

Age: 39

Venture: Farming of aromatic and medicinal plant

Village: Singarpur

Panchayat: Nayanagar

Block: Uda Kishunganj

District: Madhepura

Education qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Madhepura

FIRST TIMER IN AGRICULTURE SUCCEEDS IN CREATING MARK

For Chandan Kumar Jha agriculture was altogether a new field when he decided to take up farming as livelihood. Barring the fact his father was a farmer, Jha was no way linked with agriculture in past. He used to work in a foreign company after graduating in commerce stream from Delhi University. Destiny however had something else in store for him. Jha had to leave his job and return home in 2011 following death of his father. He had to take charge of family farm activities.

At time when Jha opted agriculture as occupation, his family used to cultivate primarily wheat and maize in nearly eight acres of their total fifteen-acre agricultural land holding. Income from paddy and maize cultivation particularly paddy cultivation was not proving much lucrative for him. Jha was looking for proper opportunity of augmenting income. He was keen on diversifying farm activities since the time he made agriculture his livelihood source. Bereft of any concrete idea, working out diversification

plan was however proving difficult for Jha. He visited Bihar Agricultural University (BAU), Sabour in 2012 for seeking suggestion of scientists and experts. The scientists and experts of university suggested Jha various measures for diversifying farm activities. They also suggested him to visit KVK, Madhepura for further consultation. Association of Jha with KVK started following his visit to the institution for consultation with scientists and experts. He was extended hand holding support by KVK for augmenting farm income. Jha was provided number of training opportunities by KVK in order to help him diversify farm activities. Following participation in training programmes, he conceptualized techniques concerning System of Rice Intensification (SRI) besides also learnt about application of zero tillage method in crop production. Regular interaction with KVK scientists helped Jha gain knowledge related to crop cycle and proper use of fertilizer. In light of his interaction with KVK scientists he felt cultivation of aromatic and medicinal plant could be a viable option for diversifying farming.

Jha subsequently provided opportunity by ATMA participated in a training programme organized on farming of medicinal and aromatic plants at Central Institute of Medicinal and Aromatic Plants (CIMAP) of Council of Scientific and

Industrial Research (CSIR) located in Lucknow. He started farming of medicinal plants Shatavar (Asparagus) and Kalmegh following participation in training programme. However initial attempt of Jha to take up farming of medicinal plants received setback as things did not work as per plan. Paddy and maize cultivation also failing to give desired return, he decided to quit farming dejected over the developments. Jha subsequently took up teaching job in a school at Forbesganj. However he returned to his village to take up farming of aromatic and medicinal plants after Madhepura district in state was included in Aroma Mission programme. Jha never looked back again since he restarted farming. With technical support of KVK scientists he started cultivation of aromatic plant mentha, khas, chamomile and geraniums besides medicinal plant Shatavar in total four-acre land. Based on technical inputs provided by KVK scientists, Jha also started cultivation of white kewanch besides introduced organic farming of vegetables like pointed gourd, chilly, ladies' finger and pumpkin in his mango orchard spread over one hectare land.

He was provided two distillation plants by CIMAP. Jha installed the plants at two different places in district with KVK assistance. His net annual income was between Rs 1 lakh and Rs

1-1.5 lakh in 2012, when he started farming. Net annual income of Jha has increased sizably in recent years. His on an average net income is around Rs 3.5 lakh at present. Jha has been motivating farmers to take up farming of aromatic and medicinal plants. He has established Farmer Producer Organization (FPO) with NABARD support. Helping FPO members in selling their produce apart from making them available fertilizer and seed at reasonable rate is primary objectives of Jha behind establishing FPO. He looks forward to attaining the objectives with KVK support. Jha is also associated with marketing and operation of a farm implement bank located at Saur Bazar block in neighbouring Saharsa district. He has been assisting farmers of his area in overcoming challenges of cultivation and harvesting by making them available advanced farm implements on rent.



Name: Arbind Kumar

Age: 40 Yrs

Venture: Poultry farming

Village: Rukum Pura

Panchayat:

Block: Modanganj

District: Jehanabad

Educational qualification: Matriculation

Institution facilitating venture: Krishi Vigyan

Kendra (KVK), Jehanabad



SKILL DEVELOPMENT PROVES GAME CHANGER FOR ERSTWHILE SALESMAN

For Arbind Kumar training of poultry farming received under skill development mission made all differences in his life. Kumar was among first batch of participants in skill development training programme organized at KVK, Jehanabad in 2017.

The skill development training besides hand holding support of KVK helped him significantly in developing poultry farming. After modest beginning, Kumar subsequently succeeded in establishing himself firmly in poultry business. At present he is recognized as successful poultry man in his area.

Kumar born in financially underprivileged family of a small farmer, was forced to discontinue study after matriculation due to financial constraints. In 1994 he went to Chhattisgarh for earning livelihood after completing matriculation level education. Kumar used to work as salesman during his stay at Chhattisgarh.

He subsequently decided to return to his native village since money he earned working as salesman was not enough to make ends meet.

Kumar started farming along with his father and younger brother in 2003 on return to his village. At time Kumar started farming his family used to cultivate maize, wheat, paddy and potato in approximately two bigha land.

Income of his family from agriculture however was not enough for fulfilling requirements. Kumar wanted do something additional apart from farming to ensure he could provide quality education to his children. Initially he was however not sure about venture that could help him augment his income.

After considering various options he decided to start poultry farming. Kumar started poultry farming with 200 broiler birds in year 2005-06, erecting shed in his house. Gradually his birds increased up to 800 in number. Kumar was finding difficult to accommodate all birds in shed at his house. He subsequently rented space in his locality for erecting additional shed.

Though his poultry was growing in size however his income was not up to the desired extent. Kumar could realize, lack of proper training was

reason his income from poultry farming was low. His dependence mainly on techniques of poultry management he had learnt from experience was reason earning of Kumar from poultry farming was not up to the mark. Well aware of the fact, he was keen on having formal training of poultry farming.

Subsequently in 2017, Kumar received an opportunity to participate in 200-hour skill development training programme on poultry farming organized by KVK. Participation in training programme helped Kumar learn techniques of scientific poultry management. He also learnt techniques that proved useful in developing his poultry.

Association of Kumar with KVK became strong in course of participation in training programme. He was provided necessary support by KVK in adoption of techniques and also in taking measures essential for better poultry management. Kumar was able to prevent diseases and reduce mortality rate of birds to a considerable extent with KVK assistance.

The skill gained through participation in training programme and support provided by KVK helped Kumar immensely in developing his poultry farm. He has more than 2400 broiler birds at present. Kumar has constructed a well-organized bird shed in a portion of his farm land following sizeable increase in number of birds. At present he supplies birds in nearby markets located at Telhara Bazar, Ekangersarai, Kaderganj besides market in Modanganj block.

Net monthly income of Kumar was between Rs 8000 to Rs 10000 in 2006, at time he started poultry farming. At present his net income from poultry farming is between Rs 45000 to Rs 50000 per month. Looking forward to take up farming in integrated mode, he has also built a cow shed adjacent to poultry shed.

At present he has six cows of Friesian breed. Net daily income of Kumar is more than Rs 560 through sell of nearly 35 kilograms of milk. He has also started fish farming recently in a small portion of his land for augmenting income. Kumar started fish farming with culture of 2000 pangasius fish. Initially he registered net income of Rs 55000 by selling 10 quintals of pangasius fish.

The initial encouraging result motivated him to diversify fish farming. Currently Kumar has started mixed culture of Rohu and Catla variety

of fishes. Having attained financial stability, Kumar is now looking forward to further develop poultry farming. He plans to take up layer poultry farming in near future.





Name: Suman Kumar

Age: 22 yrs

Venture: Beekeeping

Village: Jairam Bigha

Panchayat: Modanganj

Block: Modanganj

District: Jehanabad

Educational qualification: Intermediate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Jehanabad

BEEKEEPING PROVES USEFUL IN SUSTENANCE FOR SHARECROPPER

For Suman Kumar sharecropping was main livelihood source of sustenance till time he started beekeeping for supplementing his income. Born in a family having slightly more than four Katha agricultural land, life was difficult for him earlier. However things became better for Kumar particularly in financial front after he started beekeeping.

Previously in 2018 he had to discontinue study after completing intermediate level education due to financial problems in family. Subsequently in 2019 he joined his father and three elder brothers in farming. The farm income of family was grossly inadequate to meet daily requirements.

Kumar was highly concerned about bad financial condition of his family. He took to

sharecropping to help his family make ends meet. Life however continued to remain difficult for him as his income from sharecropping could only marginally improve financial position of his family.

It was by chance he came across some information on beekeeping one day in course of surfing internet on his mobile phone. The information though not much clear however generated interest of Kumar in beekeeping. He visited Krishi Vigyan Kendra (KVK) subsequently to have clear understanding of beekeeping and also for seeking advice of scientists and experts.

The KVK personnel provided him all required advice and guidance. They also enrolled Kumar for a month-long training programme on beekeeping organized at KVK last year. The training programme was sponsored by Bihar Skill Development Mission (BSDM). Participation in training programme helped him learn techniques of beekeeping. In fact, training helped Kumar enormously in gaining composite knowledge of beekeeping.

He was provided 10 bee boxes at nominal cost by KVK as part of handholding support extended by the institution. The KVK support significantly helped Kumar in starting his new venture. He started bee keeping in February last year following receipt of boxes from KVK. From

his own resources Kumar procured five more bee boxes apart from those provided by KVK.

At present he has total fifteen bee boxes in his apiary, located adjacent to his house. Kumar was able to extract more than 80 Kilogram of honey in approximately eight-month period since he started beekeeping in 2020. He sold his produce at price between Rs 250-Rs 300 per kilogram.

By selling honey, Kumar could recover Rs 15000, the establishment cost of apiary. From sell proceeds of honey he also created a small working capital.

Kumar is hopeful of further increasing his working capital in coming months. He aims at increasing number of bee boxes to 150 in due course. With KVK assistance and application of knowledge gained at BSDM training programme, Kumar successfully handled problems of beekeeping caused by plume moth, lizards and also because of swarming.

He is capable of better managing his apiary because of his expertise in producing queen bee. Kumar gained expertise of producing queen bee at BSDM training programme. The participants enrolled in training programme on beekeeping at KVK are often taken on visit to his apiary for purpose of demonstration. Kumar has set example how beekeeping could be taken up successfully with small capital.

He was first to start beekeeping in his area. Motivated by success of Kumar, few other people have started beekeeping. Many others interested in starting beekeeping have approached KVK officials for participation in beekeeping training organized periodically under sponsorship of BSDM.

Kumar believes selling his produce would be easier in due course in light of gradual popularity of beekeeping as livelihood source among people of his area. The beekeepers who presently sell honey to local residents are hopeful their area could witness growth of honey market in near future with gradual increase of honey production. Kumar who has been able to register cumulative income of Rs 60000 so far in current year from beekeeping and sharecropping aims at increasing his cumulative income to Rs one lakh per annum in future. He looks forward to increasing number of bee boxes seeking technical and scientific assistance of KVK personnel. Kumar is keen to make beekeeping mainstay of livelihood in future.





SKILL ACQUISITION BRINGS ECONOMIC SELF RELIANCE FOR HOME MAKER

Name: Neelam Kumari

Age: 43Yrs

Venture: Plant grafting

Village: Bhangbal Bigha

Panchayat: Daruara

Block: Noorsarai

District: Biharsharif

Educational qualification: Studied up to class 12

**Institution facilitating venture: Nalanda College
of Horticulture (NCOH), Noorsarai, Nalanda**

Doing something productive for contributing in family income was a long-cherished desire of Neelam Kumari. In fact taking into account financial condition of her family, she was keen on starting income generating productive activity. Neelam wanted to ensure her family comprised by her husband and son beside other members have adequate resource for fulfilling their basic needs. This led her think about supplementing family income.

Primarily a home maker, Neelam wanted to engage herself in income generating productive activity in her spare time. Her family having agricultural land holding of two acres grows mainly paddy, wheat, maize and potato.

Neelam who used to assist her family in farm activities could very well realize that farm income was not sufficient enough to fulfill family requirements. Her urge to take up income generating productive activity became stronger in light of the realization.

Though Neelam had taken up a job in past for financially assisting her family however she continued to look for self employment opportunity .In course of exploring chances of self employment she came across a newspaper advertisement one day regarding gardening training programme to be organized under Bihar Skill Development Mission (BSDM), at Nalanda College of Horticulture (NCOH), Noorsarai. Neelam visited NCOH in September 2017 to seek information about the training programme. She met college scientists besides nodal officer and associate nodal officer of BSDM training programme for details.

Neelam was provided all necessary information. All concerned whom she met also briefed her about possible self employment opportunities she could avail on successful completion of training programme.

Citing high horticultural potentials of the area, experts specifically briefed her about opportunities of self-employment in plant nursery. With number of nurseries located in

Biharsharif and Nalanda districts, the experts felt skill acquisition in gardening could pave way for her in becoming economically self-reliant.

Neelam selected for training programme was enrolled for 300-hour training. She learnt methods of grafting, layering, budding besides advanced techniques of plant propagation and setting up of nursery, in course of training.

Her association with NCOH started following her selection for training. Neelam was extended hand holding support by the institution in her effort to become self employed.

In course of training programme the NOCH personnel involved in imparting training took note of deftness with which she picked up skill of grafting. They advised her to explore possibility of commercially utilizing her skill. The resource persons suggested Neelam to use her skill in grafting of horticultural plants particularly mango plants.

At behest of NCOH the Krishi Vigyan Kendra (KVK) at Harnut provided her initial opportunity of utilizing her skill. Neelam was engaged by KVK for grafting of mango plants at rate of Rs 3 per plant. Initially she used to accomplish work of grafting 80 to 100 plants per day. At present Neelam is capable of grafting 150 to 200 plants per day.

She is periodically engaged for plant grafting

work by more than ten private nurseries located in her area. In peak season Neelam generally undertakes grafting work for 20 to 25 days per month. On an average she earns Rs 15000 per month.

Neelam starts her day early. Completing domestic work by 8PM, she leaves for her workplace. Her monetary contribution has helped improve financial condition of her family. Neelam looks forward to increasing her income further in future.

She has plan of starting beekeeping for further augmenting her income. She also intends to establish her own nursery in future provided she is able to generate adequate resources for the same.





Name: Manoj Kumar

Age: 42 Yrs

Venture: Mushroom and spawn production

Village: Punsia

Panchayat: Rajoun

Block: Rajoun

District: Banka

Educational qualification: Intermediate

Institution facilitating venture: Bihar Agricultural University (BAU), Sabour

MUSHROOM FARMING BRINGS CHEER FOR RETIRED ARMY PERSONNEL

Doing something productive for income generation was priority of Manoj Kumar post retirement. A former army man he valued economic self – reliance. It was reason Kumar was keen on undertaking gainful

productive activity after retirement. He however was not sure about activity he should take up for the purpose.

Kumar belonging to a family having agricultural background had farming somewhere in back of his mind. He wanted to explore possibility of farming. However, Kumar was not interested in

growing conventional crops. He wanted to do something different in field of agriculture.

While Kumar was looking for a suitable option, an acquaintance told him that he should meet scientists and experts at BAU for the purpose. It was in 2011, he met some university scientists for seeking their advice.

The concerned scientists with whom Kumar had discussion regarding options of gainful agricultural activities mostly suggested him to start mushroom farming. He subsequently received opportunity of participating in training programme organized by university on mushroom farming.

Training helped Kumar learn technicalities of mushroom cultivation. The scientists who guided him provided necessary technical assistance for beginning mushroom cultivation. Handholding support of university helped Kumar enormously in undertaking mushroom

farming successfully.

Taking into consideration cultivation of oyster mushroom was comparatively easy, he opted for the variety. Since different types of agricultural



waste available free of cost at village level could be used in production of oyster variety of mushroom was one of the reasons Kumar opted the variety for cultivation.

He began mushroom cultivation same year he met university scientists for guidance. Initially Kumar started growing oyster variety of mushroom in approximately 300 sq meter space in his house. After starting on low scale he firmly established himself in field of mushroom farming with passage of time.

Initial encouraging results motivated Kumar to take up cultivation of more mushroom varieties. He decided to take up commercial production of white milky mushroom, button mushroom apart from oyster mushroom. Kumar started farming of the varieties in extended area of approximately 3000 sq meter.

He however decided to take up limited production of button mushroom taking into account high investment involved in production of the variety. On an average Kumar was able to harvest more than 16 kilogram of mushroom per day growing all the

three varieties.

His net monthly income from mushroom cultivation was around Rs 25000 during season.

Initially Kumar had to face problem in selling his produce. He had to sell his produce at local level in absence of proper market linkage.

Subsequently Kumar was able to find market for his produce with assistance from university scientists. He also started supplying his produce at hotels in Banka and Bhagalpur. This further helped him in overcoming problems related to selling his produce.

Kumar motivated number of other people in his village to start mushroom farming following his success in the field. He believed increased production of mushroom could help his village become mushroom hub in the area. It would be easy to attract bulk purchasers for purchasing produce of growers from doorstep if volume of mushroom production is high in the area, Kumar felt.

He was of the view mushroom cultivation could bring economic self-reliance for many in his area. In order to facilitate easy sell of their produce, Kumar extended all possible help in establishing a common sell counter for mushroom growers in his area.

Having resolved all other problems related to production and sell of mushroom, he looked forward to resolving problem related to availability of mushroom spawn. Kumar had to depend mainly on BAU as well as Krishi Vigyan

Kendra (KVK) at Banka for mushroom spawn in absence of availability seed at local level.

In light of high supply demand of mushroom spawn it becomes difficult for BAU and KVK at times to supply spawn in desired quantity to growers. In such a situation Kumar had to face problem in fulfilling his requirement of spawn. To overcome the problem, he wanted to have his own seed production facility. After successfully undertaking mushroom farming for two years, Kumar established a small spawn lab in his house from his profit earning. Apart from fulfilling his own requirement of seed he started selling seed to small growers, NGO's and government agencies after establishing spawn lab.

On an average Kumar sells 15 to 16 kilograms of seed daily. In winter his daily sell of seed is comparatively more. At present his cumulative income is between Rs 2.0 lakh and Rs 2.5 lakh per annum through sale of fresh mushrooms and mushroom spawn.

Kumar, who has mastered techniques of mushroom farming, imparts training as resource person to participants in training programmes organized on mushroom cultivation by different institutions. He is role model for many in his area who have taken to mushroom farming for livelihood.





Name: Dilip Kumar Singh

Age: 51 Yrs

Venture: Vegetable farming

Village: Mehaddiganj

Panchayat: Mohaddiganj

Block: Sasaram

District: Rohtas

Educational qualification: Intermediate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Rohtas

FARMER ACHIEVE SUCCESS IN LIFE THROUGH VEGETABLE FARMING

Life has changed for better for Dilip Kumar Singh at present compared to past. A progressive farmer, he is presently involved in large scale vegetable farming. Earlier a marginal farmer Singh survived on low scale vegetable farming. He used to earn livelihood by selling his produce in roadside village market. Sustenance was major challenge for Singh. However he was able to change course of destiny subsequently. It was handholding support of KVK; Rohtas besides his determination to overcome odds helped Singh immensely in making life better. He managed to attain desired growth in vegetable farming by dint of his hard labour and KVK support. Born in a family having meager



financial resources, he was forced to discontinue study after completing intermediate level education. Subsequently in year 1993 Singh started selling vegetables to address financial needs of his family. However, amount he earned selling vegetables was far from sufficient to make ends meet. In due course Singh started vegetable farming taking two- acre land on lease in Misirpur village of Sasaram block. He was able to register encouraging income selling his produce of first year. Things started looking up for him since he started vegetable farming. However, prevention of diseases in vegetables was a major challenge for Singh. Because of diseases, quality of his produce was often affected adversely. In year 2008 he faced serious chances of crop loss because of disease in cauliflower. It was at this time someone told Singh that he should seek advice from scientists of KVK, Rohtas to save his cauliflower crop. He met KVK scientists and informed

them about his problem. Taking measures as per advice of KVK scientists Singh could effectively control cauliflower disease and thereby was able to save his crop. His association with scientists and other personnel of KVK started from this point of time.

With an objective of improving his farming skill Singh was provided opportunity of participating in number of training programmes by KVK. Participation in training programmes helped him acquire new useful skills of scientific vegetable farming.

He was also sent to Varanasi by KVK for participating in training programme on vegetable farming organized by Indian Institute of Vegetable Research (IIVR), Varanasi and Department of Horticulture, Banaras Hindu University (BHU). Participation in training programme helped Singh in getting acquainted with advanced techniques of vegetable farming. Motivated by KVK scientists to take up vegetable farming in increased area, he took land on lease at Kuriach, Dayalpur, Lalganj, Neema, Kota, Suma and Jaynagar villages for augmenting income. At present Singh undertakes vegetable farming in total 20-acre land including the land taken on lease.

Well acquainted with advanced skills and techniques, vegetable cultivation in increased

area helped him in sizably increasing his income. Singh also started organic farming of vegetables like cabbage and cauliflower with technical guidance of KVK scientists.

In 2014 his cumulative annual gross income from organic and inorganic farming of vegetables was between Rs 7 lakh to Rs 10 lakh. Having started as a marginal vegetable grower Singh succeeded in establishing himself as entrepreneur in field of vegetable production.

He firmly established his foothold in vegetable farming with passage of time. Gross annual income of Singh from vegetable farming increased to Rs 17 lakh per annum in 2019. Rise of his income speaks volume about growth he could achieve in vegetable farming.

Several innovative interventions were made by Singh in vegetable farming under guidance of KVK scientists and experts. Most of the interventions proved to be result oriented. Reduced input cost of farming besides increased production were some of the major impacts of intervention.

The strategic changes introduced by him on suggestion of KVK experts for marketing his produce and human resource management contributed in his income growth. More than 20 labourers have been engaged by Singh for managing farm activities. He has introduced

three tier systems for effective management of human resources.

Introduction of mixed and inter cropping systems as per suggestion of KVK helped him increase overall vegetable production apart from ensuring better land utilization. At present he has also started protected cultivation of highly priced vegetables like capsicum and seedless

cucumber. Singh has established a greenhouse for the purpose. He is well acknowledged as progressive vegetable grower in his district. The private companies involved in marketing of seeds in most cases prefer holding field demonstration of their product in his vegetable farm.

For purpose of providing field training to people interested in vegetable farming, exposure visits to his farm are also organized by government agencies. Singh has established three vegetable shops in posh locality of Sasaram town following his success in vegetable farming.





Name: Sudhir Kumar

Age: 38 Yrs

Venture: Makhana farming

Village: Tulasayahi

Panchayat: Murli Basantpur

Block: Kahra

District: Saharsha

Educational qualification: Intermediate

Institution facilitating venture: Mandan

Bharati Agriculture College, Agwanpur

MAKHANA CULTIVATION PAVES WAY OF ECONOMIC PROSPERITY FOR FARMER

His essentiality of augmenting income had led Sudhir Kumar start low scale makhana farming initially. However, with passage of time he sizably increased area under makhana cultivation. At present in his district he is well acknowledged as progressive makhana grower. Kumar was forced to take up farming as livelihood occupation after completing intermediate education. He had to discontinue study after

intermediate level education because of financial problems. Subsequently Kumar started assisting his family members in agricultural activities. For sustenance his family was primarily dependent on agriculture. The meagre farm income of family was hardly sufficient for fulfilling basic needs. Things were proving difficult for Kumar. His family used to grow conventional crops in agricultural land holding of 2.5 acre. Cultivating

paddy and maize on an average family of Kumar used to register net income of Rs 20000 annually. Realizing necessity of increasing family income, Kumar was keen on diversifying farm activities. However, he was not sure about options of diversification that could be beneficial for him. Unable to work out diversification plan, he met scientists and experts of Mandan Bharati Agriculture College in 2012 to seek their

advice. This was beginning of his association with scientists and experts of college. Kumar was extended handholding support by college for diversifying farm activities. Taking into consideration Saharsha district is ideally suited for makhana cultivation due to presence of numerous water bodies he was suggested by scientists and experts for exploring possibility of makhana cultivation. Kumar was provided training of makhana farming at college. For live demonstration of makhana farming he was also provided opportunity of exposure visit to makhana farm. Training as well as demonstration helped Kumar immensely in learning required techniques of scientific makhana farming. Motivated by scientists and experts, he started low scale makhana farming in two ponds spread over 0.5-acre area. Kumar having incurred input cost of Rs 35000 for farming had gross income of Rs 60000 growing makhana first time. In fact, first time return from makhana farming failed to satisfy him. Kumar however was not discouraged because of low income. His initial failure to reap harvest in desired quantity made him stronger.

Kumar started cultivating makhana with more vigour and confidence next time. He took more pond and wetlands on lease for makhana cultivation in extended area. Taking together all the ponds and wetlands Kumar cultivated makhana

in total eight- acre area. His decision to take up cultivation in extended area paid him dividend. Gross income of Kumar was approximately Rs 7.5 lakh next time from makhana cultivation. Highly satisfied with his income, he never looked back again. Kumar further increased his income subsequently through successful farming of makhana. His decision to take up cultivation of Sabour Makhana -1 apart from other varieties



significantly helped him in increasing quantity of his produce. The high yielding variety less prone to diseases and pest infestation has been developed by Bihar Agriculture University (BAU), Sabour. The variety is ideally suited for cultivation in Kosi region. Kumar was able to record yield of 24 quintal /hectare cultivating Sabour Makhana -1. Initially he was involved in production and sell of makhana seeds (Gudiya). Subsequently he started preparing lava from

makhana seeds. Kumar could earn more selling lava instead of makhana seed. Since makhana is grown almost extensively in his area; the produce of growers is purchased from doorstep by bulk purchasers. Hence for Kumar there is no problem in selling his produce. Of late he has integrated fish culture with makhana farming following his success in later. Integrated farming of fish and makhana was started by Kumar for better results on advice of scientists and experts. As per advice he started farming of fish species namely grass carp, mirgal, silver carp and catla, along with makhana. Through integrated farming Kumar was able to record fish yield between 1.75 to 4.15 quintal/ hectare and makhana seed yield between 16.85 to 22.15 quintal/hectare. Integrated farming of fish and makhana helped Kumar register net income between Rs 1,30,000 to Rs 1,55,000 per hectare/annum. As per a rough estimate almost 85 % makhana growers in north Bihar have adopted integrated system of farming because of high return. According to Umesh Singh, associate dean cum principal, Mandan Bharati College, exploitation of huge potential of makhana farming, has helped improve economic condition of small and marginal farmers in the area. Success of Kumar has motivated many others in his area to take up makhana farming. He has become role model for others.



Name: Satish Kumar

Age: 24 Yrs

Venture: Sugarcane farming and juice production

Village: Bhawanibigha

Panchayat: Nanand

Block: Silao

District: Nalanda

Educational qualification: Bachelor of Technology

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Nalanda

OUT OF THE BOX APPROACH BRINGS SUCCESS FOR NALANDA YOUTH

It is generally difficult achieving success in diverse field. However, Satish Kumar could do it because of his ability to think differently. A petroleum engineering graduate, he has established himself as progressive entrepreneur. Kumar is involved in sugarcane farming and sell of hygienically extracted sugarcane juice.

Utilizing innovative idea he has successfully exploited

market gap so far availability of hygienically extracted sugarcane juice is concerned. In 2015-16 while studying in a technical institution at Punjab Kumar could assess the market gap.

During his stay at Punjab where sugarcane is grown extensively, out of curiosity he explored reasons behind inability of growers to get desired income from sugarcane

farming. Following identification of the reasons he felt value addition could ensure better remunerative price of produce for sugarcane growers. This led Kumar think about proper marketing of sugarcane juice as soft drink.

He was of the opinion that despite being highly nutritious, sugarcane juice is not popular as soft drink primarily because extraction process of juice is considered to be unhygienic by people in most cases. Kumar could very well assess market gap concerning availability of hygienically extracted sugarcane juice.

The result of gap assessment sparked in him desire of becoming entrepreneur. After graduating in petroleum engineering, Kumar floated a company that was primarily involved in establishing contact between manufacturers and buyers. In course of managing affairs of his company he had opportunity of interacting with an overseas buyer interested in purchase of sugarcane juice.

In light of his talk with the buyer, Kumar became more sure about market potential of sugarcane juice. He wanted to explore possibilities of marketing sugarcane juice as soft drink in both domestic and overseas market. However, initially Kumar wanted to explore possibilities of domestic market.

He returned to his village in 2019 from

Chandigarh following his decision to start new venture. Back in his village Kumar had to face tough time in convincing his parents about his plan.

Elders in his family in most cases wanted him to take up conventional job where he could utilize his knowledge of petroleum engineering. Subsequently however convinced about viability of planned venture of Kumar his parents allowed him to go ahead with his plan.

Kumar, whose association with KVK started before he took up implementation of his plan was extended handholding support by scientists and other personnel of the institution. By taking one bigha land on lease in addition to his three bigha farmland, he started farming of sugarcane in total four bigha.

KVK scientists who proved to be big support for Kumar helped him in taking up cost effective sugarcane farming. From KVK scientists he acquired knowledge of scientific and cost-effective sugarcane cultivation methods namely ring method, trench method, and parallel method besides parallel with trench method.

Kumar also learnt intercropping techniques from KVK scientists. He however decided to go for contract farming in order to meet his sugarcane requirement for juice extraction. Decision of Kumar to opt contract farming created scope of

employment for number of small and marginal farmers. On his behalf they grow sugarcane in his farmland.

Arrangement made with small and marginal farmers by Kumar has ensured good profit earning for them. Intercropping of tomato and cauliflower along with sugarcane helps him retrieve labour cost incurred on contract farming.

With 200 quintals per bigha average yield of sugarcane, Kumar is able to produce 800 quintals of sugarcane. To ensure sugarcane juice could be hygienically extracted he has got machines specially designed for the purpose contacting manufacturers of juice extraction machines.

Taking note people mostly prefer drinking chilled sugarcane juice; Kumar made it a point to ensure there is chilling facility in machines. From point of view of hygiene, the specially designed juice extraction machines were fitted with stainless-steel rollers.

The juice extraction machines having capacity of crushing 100-kilogram sugarcane per hour have been also fitted with accounting software for easy accounting of sell proceeds besides to ensure buyers have option of purchasing juice of any amount.

Kumar also got five e-rickshaws specially designed from Rajkot in Gujarat having space for mounting the juice extraction machines.

He has employed people who sell hygienically extracted sugarcane juice from e-rickshaw in market area of Nalanda town. Kumar also has two fixed counters for selling sugarcane juice at two educational institutions in Nalanda town. On an average his daily net income is Rs 1500 from each stall including e-rickshaw stalls and fixed stalls. Taking together establishment

cost and cost of raw material, Kumar incurs expenditure between Rs 10 to Rs 12 in crushing one kilogram sugarcane. The juice output from one-kilogram crushed sugarcane is normally between 600 ml to 700 ml. He is able to earn more than Rs 30 selling juice extracted from one kilogram sugarcane. In hand profit of Kumar in any case is more than fifty percent. His overall

net income is between 2.5 lakh to 3.0 lakh per month. Kumar has been able to secure bank linkage for his project with KVK support. Under Prime Minister Employment Guarantee Programme (PMEGP), he has been sanctioned loan of Rs 10 lakh for his project. Kumar looks forward to launch his business of sugarcane juice also at Patna in near future.



Name: Alok Kumar

Age: 33 yrs

Venture: Protected and open cultivation

Village: Meghi

Panchayat: Meghi Narma

Block: Biharsharif

District: Nalanda

Educational qualification: M.Sc. (Horticulture)

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Nalanda

DEVIATION FROM CONVENTIONALITY PROVES TO BE RIGHT MOVE

Though skipping conventionality could be a tough decision however Alok Kumar didn't think twice before he decided to ignore opportunity of conventional job.

A master of Agri Science, he was enrolled as senior research fellow of plant breeding and genetics in agriculture university located in Punjab, when he decided to take up farming as livelihood occupation.

Post- doctoral studies Kumar could have easily secured a conventional job. However, motivated by successful floriculture in Gujarat besides horticulture in Haryana and Punjab he had made up his mind to go for



farming.

Kumar had exposure of floriculture in Gujarat besides horticulture in Haryana and Punjab in course of educational tours. Having firmly decided to take up farming as livelihood occupation he returned to his village in 2017.

Though for Kumar it was tough convincing his parents initially about his decision however subsequently they gave him their consent to go ahead with his plan. He wanted to begin commercial cultivation of gerbera flower apart from vegetables that are less grown in Bihar and mostly supplied in local markets from outside.

Taking into consideration capsicum pods largely consumed as vegetables is mostly supplied in local markets from other states, Kumar wanted to explore possibility of growing capsicum. He did proper market research besides also contacted scientists at Bihar Agricultural University (BAU), Sabour and KVK to seek their advice.

Kumar was shown university poly house by scientists besides they told him about measures that could help him in successfully undertaking protected cultivation of gerbera. Taking six -acre land on lease in addition to his one- acre land he started executing his plan of protected and open cultivation, in the same year he returned to his village.

Under government scheme Kumar established

poly house utilizing one bigha of total land. The KVK authorities besides horticulture department officials played key role in ensuring his selection as beneficiary under the government scheme. A beneficiary is entitled for 50 % subsidy under the government scheme.

Kumar was reimbursed by government half of his total expenditure of Rs 24 lakh incurred on establishment of poly house. He was provided Rs seven lakh under the scheme for purchasing planting materials. For frontline demonstration Kumar was also allocated a net house under government scheme at behest of KVK officials and scientists.

He was provided 80% subsidy for setting up net house in 1/2-acre area. It was in 2018 Kumar started his venture with protected cultivation of gerbera besides cultivation of capsicum in net house. By procuring seedlings from Pune, he cultivated seven varieties of gerbera in first year.

His net income from gerbera cultivation was between Rs four lakh to Rs five lakh in first year. Same year Kumar also registered net income of Rs three lakh growing capsicum. The overall initial result of farming proved to be quite encouraging for him.

Kumar had no problem in selling his produce since he had done prior market research visiting flower markets located at Patna, Biharsharif and

Gaya. In light of the fact demand of capsicum remains high round the year he also had no problem in selling capsicum pods in local market. Kumar was able to produce more than 10,000 kilogram of capsicum pods from 1000 plants.

He started both protected and open cultivation of capsicum from 2019. Kumar was able to record net income of Rs five lakh from capsicum cultivation. His net income from floriculture was between Rs three lakh to Rs four lakh. Net income of Kumar was slightly less in 2019 due to fluctuation in market rate of flowers.

However, quantity wise he had more produce in second year due to increased budding. Profit earning of Kumar dropped in 2020 due to pandemic. However, his income from both cultivation of gerbera and capsicum remained on higher side compared to his cultivation cost.

In 2020 his net income was Rs three lakh each from cultivation of gerbera and capsicum. Kumar is hopeful his profit earning would increase sizably once situation becomes normal. As per his estimation net income from cultivation of capsicum in one acre area is on an average Rs four lakh in normal situation.

Kumar is confident his income from floriculture would be approximately Rs 15 lakh per annum after situation normalizes. He grows nearly

40000 to 50000 gerbera flower per month. Taking together all expenses Kumar incurs expenditure between Rs 1.5 to Rs 2.0 in growing a flower.

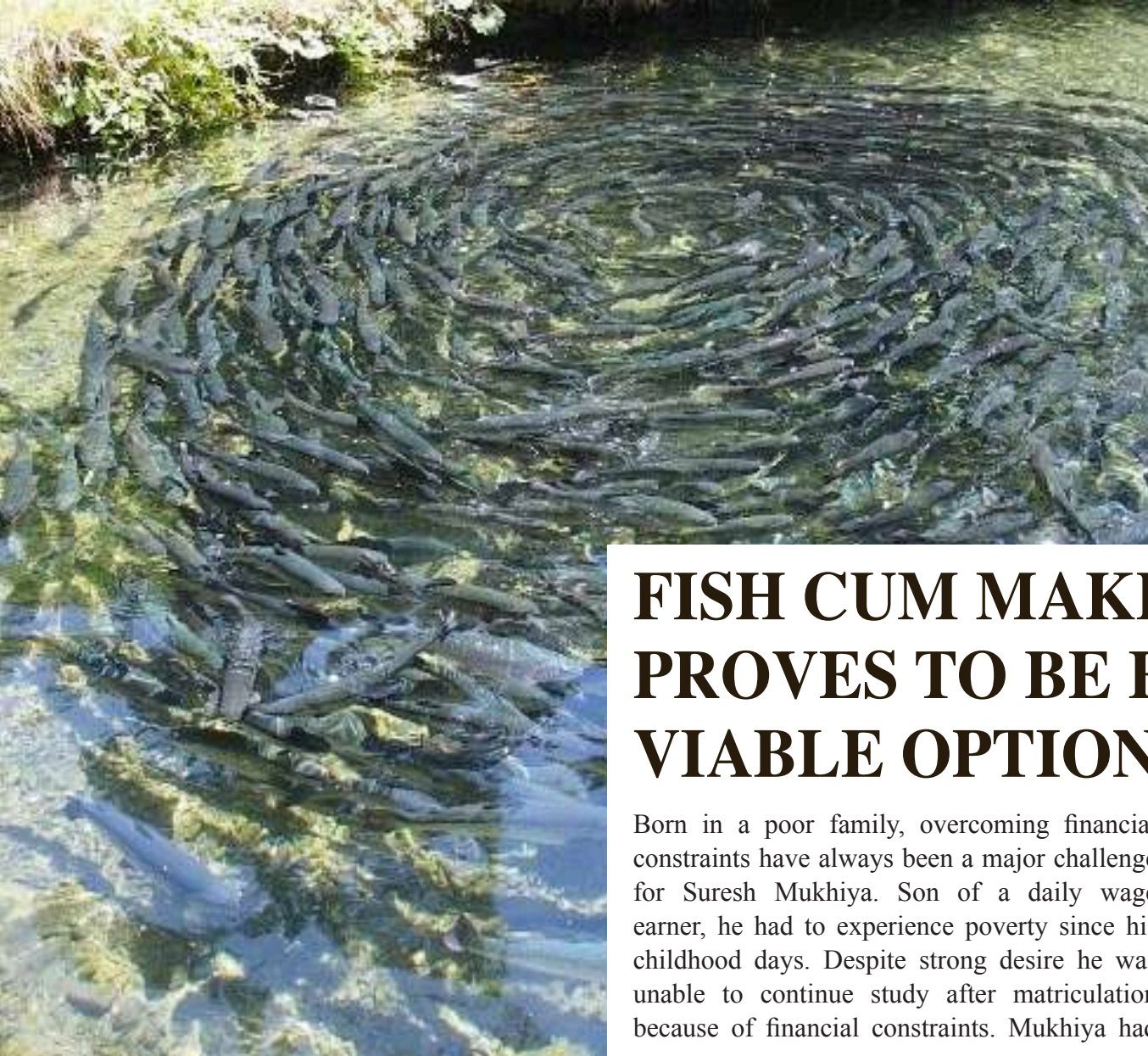
During season sell of a flower normally fetches him Rs five to Rs ten. Kumar is able to earn between Rs two to Rs three through sell of a flower during off season. In normal situation his net income is approximately Rs four lakh through cultivation of capsicum in one acre area.

In recent years Kumar has also started growing papaya, bitter gourd, moringa, brinjal and tomato. He has also started experimental farming of strawberry. Utilizing seed made available by one of his relative who stays in Germany he has recently taken up trial farming of radish and chilly varieties grown in that country.

The assistance being provided by KVK scientists in solution of problems has helped Kumar significantly in ensuring agricultural growth. Connected with KVK scientists through what's App, he communicates them about problem if any.

The scientists in turn either provide solution of problem through what's App post or visit farmland of Kumar for solving the problem. The KVK in role of facilitator had also helped him in his inclusion as beneficiary under government schemes meant for farmers.





Name: Suresh Mukhiya

Age: 41 Yrs

Venture: Fish cum Makhana Farming

Village: Purikh

Panchayat: Purikh Purusattampur

Block: Sattarkataiya

District: Saharsa

Educational qualification: Matriculation

Institution facilitating venture: KVK, Saharsa

FISH CUM MAKHANA FARMING PROVES TO BE ECONOMICALLY VIABLE OPTION

Born in a poor family, overcoming financial constraints have always been a major challenge for Suresh Mukhiya. Son of a daily wage earner, he had to experience poverty since his childhood days. Despite strong desire he was unable to continue study after matriculation because of financial constraints. Mukhiya had

to shoulder responsibility of looking after his family at an early age. He took up farming as livelihood occupation for fulfilling financial needs of his family. Mukhiya started farming in 0.5 acre agricultural land his family owned. He took up cultivation of conventional crops like paddy, maize, and wheat besides coarse

grains after he took charge of family farm activities. The members of previous generation in his family also used to cultivate conventional crops including coarse grains. With size of his agricultural holding not sufficient enough to take up large scale cultivation of crops; Mukhiya was unable to register desired income from agricultural activities. In a bid to augment income he seriously started contemplating about diversifying farming. Mukhiya explored various options. However he was unable to work out an appropriate plan for the purpose. It was this time he came in contact with scientists of Krishi Vigyan Kendra (KVK), Saharsha. Apart from ideation, KVK also extended him handholding support in diversifying agricultural activities. The scientists and experts of KVK advised him to consider exploiting local agro-ecological resources for diversifying farm activities. They suggested him to adopt Integrated Farming System (IFS) for better earning. The scientists advised him to take up integrated farming comprising fishery, goatery, poultry, plantation and vegetable production apart from makhana production. Mukhiya was extended opportunity of training by KVK for the purpose. Taking up integrated farming on suggested line however proved difficult for him in absence of adequate land and financial resources. Subsequently

borrowing money, he took 15 acres of land on lease at rent of Rs 1.75 lakh per annum. Mukhiya got a pond excavated on land he had taken on lease for makhana production and fish culture. Apart from makhana production and fish farming he also started goat farming for supplementing his income. Initially in year 2017, Mukhiya started growing makhana. Subsequently in year 2019 he introduced fish farming. His initial net income was between Rs 30000 to Rs 40000 from makhana cultivation. At beginning income of Mukhiya from fish culture was between Rs 40000 to Rs 50000 excluding all expenditure. Having started goat farming side by side, at present he has more than 15 goats of local breed. Excluding input cost annual income of mukhiya is between Rs 20000 to Rs 25000 from goat farming. His income from makhana and fish farming has increased substantially in recent years. Taking together income from makhana cultivation besides fish culture and goat farming, net income of Mukhiya is more than rupees three lakh per annum at present. He has successfully diversified fish farming over the time by taking up culture of new varieties of fishes including Rohu and Catla. Mukhiya produces more than six quintal fish in every four month period. He has successfully augmented makhana production cultivating Sabour Makhana -1. Cultivation

of Sabour Makhana-1, a high yielding variety having yield between 32 -35 quintal/ hectare, in fact helped him immensely in increasing production. Mukhiya produces approximately 270 quintals of makhana annually.

Adoption of integrated farming system has improved his financial condition. Things have changed for better at present for Mukhiya. There has been marked improvement in his quality of life. His family members now have better access to modern facilities. Mukhiya has temporarily engaged more than fifty people of his village for assisting him in carrying out extended agricultural activities.

Influenced by Mukhiya number of farmers in his village has started integrated fish and makhana farming. With sizable increase in makhana and fish production the problem of farmers in selling their produce has been over. Increased production has resulted in doorstep procurement of fish and makhana produce of farmers by bulk purchasers

His success in integrated farming has made him role model for many in his village. Mukhiya largely acknowledged as resource person by people in his village extends all possible help to others in adoption of integrated farming system. He looks forward to further expand integrated farming and make it more broad based in future.

Name: Deen Dayal Singh

Age: 31 Yrs

Venture: Vegetable farming through relay cropping

Village: Kuswaha Mohalla

Block: Nasriganj

District: Rohtas

Educational qualification: Intermediate

Venture: Vegetable farming

Institution facilitating venture: KVK Rohtas, Bikramganj

VEGETABLE GROWER AUGMENTS INCOME THROUGH RELAY FARMING

It was dream come true for Deen Dayal Singh to have desired income from vegetable farming. A vegetable grower of Rohtas district he had

started growing vegetable along with family members in year 2001 while his age was 16 yrs. In initial years, income of Singh from vegetable farming was not much promising. Things



however started changing for better since he started relay farming of vegetables.

Singh was reluctant about taking up vegetable farming as livelihood occupation initially as he wanted to continue study. He had to discontinue study due to financial constraints. Subsequently he however joined his family members in vegetable cultivation, realizing the fact ensuring financial sustenance of his family was his immediate priority.

At present Singh has no remorse having taken to vegetable farming as livelihood occupation. A successful vegetable grower he is well recognized as a progressive farmer in his district as well as adjoining districts. Singh has created benchmark concerning successful family farming. With approximate net income of Rs six lakh per annum, at present there is no need for Singh to look back again.

The KVK, Rohtas had contributed significantly in his success by extending him handholding support. It was technological back-up and interventions of KVK that helped Singh and his family increase income from vegetable farming. As result of KVK handholding support he has sizably increased overall farm output.

In past when Singh felt dejected unable to register desired income from vegetable farming he was suggested by one of his acquaintances to

contact KVK scientists and experts for guidance. It was beginning of his long association with KVK personnel. Singh was imparted training at KVK for relay farming of vegetables.

In fact relay farming of vegetables initiated by Singh on suggestion of KVK scientists and experts paved way of success for him and his family members. He presently does relay farming of vegetables along with other members of family in 1.5 hectare agricultural holding owned by his family.

The cumulative net income of Singh and his family members has increased substantially after they introduced relay method of vegetable farming. Under relay pattern of farming, in same plot they grow Bottle Gourd, Cucumber, Bitter Gourd/ Sponge Gourd followed by winter vegetables Okra, Potato, Spinach, Cabbage, Cauliflower, Raddish and Coriander.

The same plot is also used by Singh for growing summer vegetables namely Brinjal, Cucumber, Pumpkin, Okra etc. Singh and his family members together produces nearly 640 quintal of tomato per hectare. Their Okra produce is approximately 240 quintal per hectare.

Their Brinjal and Sponge Gourd produce is respectively 400 quintal per hectare. On an average produce of Bottle Gourd and Coriander grown by family of Singh is respectively 640

quintal per hectare and 140 quintal per hectare. Production of Spinach cultivated by family is 320quintal per hectare.

The family of Singh grows hybrid variety of Cauliflower apart from Sabour Agrim, an early variety Cauliflower developed by Bihar Agricultural University (BAU), Sabour. While yield of hybrid variety is 240 quintal per hectare the yield of Sabour Agrim is 100 quintal per hectare.

Further production of Cabbage and Cowpea grown by Singh and his family members is respectively 400 quintal per hectare and 160 quintal per hectare. Singh joined by his family members are able to record profit of Rs 6,70,000 through relay farming of vegetables.

Relay farming of Bottle Guard and Coriander respectively fetch them net profit of Rs 80000 and Rs 1,40,000 per annum. They register profit of Rs 1,20,000 and 80,000 per annum respectively by growing spinach and cauliflower through relay farming method.

Relay farming of Okra and Sponge Guard respectively fetch them net income of Rs 1,40,000 and 50000 per annum. Further Singh and his family earn Rs 60000 per annum through relay farming of Amranth. In light of the fact majority of male and female members in family of Singh assist in farming, he has very little need

of engaging labourers for farming purpose. Negligible labour expense of Singh is contributing significantly in his encouraging net income from relay farming of vegetables. He looks forward to take up relay farming of more vegetables in future with required assistance from KVK.

Success of Singh in increasing family income through scientific farming has brought him number of awards. Well acknowledged as progressive farmer he has adopted technologies useful for scientific farming. Having keen interest in latest agricultural developments, Singh makes it a point to remain in touch with scientists and experts of KVK.

He was among the farmers of eastern region, who were awarded in recognition of their unique achievements, at Purvanchal Kshetriya Kisan Mela-2015 organized by union ministry of agriculture and cooperative at Central Potato Research Station, Patna. Singh received certificate and a shawl from the then agriculture minister in central government at Purvanchal Kshetriya Kisan Mela in recognition of his outstanding contribution in agriculture through family farming.





Name: Md. Tafazul

Age: 39

Venture: Pisciculture

Village: Sandalpur

Panchayat: Gaira

Block: Araria

District: Araria

Educational qualification: Matriculate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Araria

FISH FARMING MAKE THINGS DIFFERENT

FOR ERSTWHILE BRICK KILN WORKER

It is well said courage to pursue helps realizing dreams. Md. Tafazul is a case in point. It was his strong urge to diversify for achieving something bigger that made his life different. Having start-

ed as daily wage earner in brick kiln, at present Tafazul is a successful pisciculturist. He used to work in a brick kiln at Ghaziabad in the period between 1997-98 and subsequently

migrated to Meerut to work as farm labourer. Tafazul worked in a vegetable farm during his stay at Meerut.

He learnt nuances of vegetable farming while

working in vegetable farm. Tafazul returned to his native village after brief stay at Meerut. Back in his village, in year 2001 he took to vegetable farming. He started growing brinjal taking 10 Katha land on lease.

Tafazul registered net profit of Rs 36000 from his initial venture. He further expanded vegetable farming by taking more land on lease. He started cultivating cauliflower, lemon, banana, tomato and chilly besides other vegetables. Though vegetable farming proved profitable for Tafazul however it was fish farming that proved actual game changer in his case.

The KVK, Araria, played significant role in his success both in vegetable and fish farming. Scientific and technical assistance extended by KVK helped Tafazul to pursue vegetable and fish farming successfully. In fact, he had been in contact with scientists and other personnel of KVK since he started vegetable farming.

Tafazul learnt technicalities of vegetable and fish farming participating in training programmes organized by KVK. He took to production of offseason vegetables like capsicum, broccoli, cucumber, water melon utilizing knowledge he acquired participating in training programmes.

Tafazul also learnt techniques of farming Chital variety of fish through participation in training programmes organized by KVK. It was because



of institutional support (read KVK, Araria), he could diversify moving ahead from vegetable farming.

Tafazul started fish farming along with vegetable farming for increasing his income. He took a ditch on lease for beginning fish farming. Digging of earth in order to meet requirement of soil for road construction had led to creation of the ditch. Tafazul started fish culture with 400 pieces of Magur fish (*Clarias batrachus*). He could produce two quintals of fish first time he started fish culture.

Tafazul was able to register encouraging net income selling his produce at rate of Rs 10000 per quintal. He subsequently started farming of Chital, Catla, Rohu, Common Carp and Grass Carp taking into account his substantially high profit earning from culture of Magur fish.

More than two years back, Tafazul started farming of Chital fish in one acre land. He had to incur expenditure of Rs 5000 for stocking fish seed. Tafazul incurred overall expenditure of Rs 32000 in culture of Chital variety of fish.

First time he started farming of Chital fish, his gross profit earning was approximately Rs 1.25 lakh while his net income was around Rs 93000. At present annual net income of Tafazul is between Rs 800000 to Rs 900000 taking together his earning from vegetable and fish farming.



On an average he has been able to ensure 20 percent to 30 percent income growth during last three years. Of late, Tafazul has increased area of his pond holding up to five acres taking more land on lease. He has taken to culture of more variety of fishes with his income from fish farming has registered sizeable increase.

The expertise provided by scientists and other personnel of KVK helped Tafazul in scientific fish farming. He was able to restrict mortality besides ensure proper growth of fishes with scientific knowhow including knowledge of medicinal requirements provided by experts of KVK.

The knowhow provided by KVK experts further helped Tafazul in ensuring space required for proper growth of fishes taking into consideration size of his pond holdings. Taking together his three pond holdings he presently does fish farming in total three acres.

Having almost doubled his income from fish culture, Tafazul looks forward to expanding fish farming in future. In a pond holding of one acre, he has started farming of Rupchanda and Pangasius fish. He is hopeful culture of Rupchanda and Pangasius fishes will sizably supplement his income.

Name: Bandana Kumari

Age: 36 Yrs

Venture: Dairy farming

Village: Merha

Panchayat: Jamdaha

Block: Katoriya

District: Banka

Educational qualification: Graduation

Institution facilitating venture: KVK, Banka

FEMALE DAIRY FARMER REGISTER SUCCESS THROUGH VALUE ADDITION OF MILK

Bandana Kumari didn't think twice before she decided to start dairy business. It was her strong determination to excel in life that led her start dairy farming, largely considered to be male domain. Bandana hardly had any hesitation in taking up a livelihood occupation where female presence is relatively less compared to males. Primarily a home maker, everything had been



not very smooth in life in her case. However, her knack to do something new and innovative helped her immensely to withstand the odds.

The handholding support extended to Bandana by Krishi Vigyan Kendra, Banka significantly helped her in establishing herself as successful dairy farmer besides as cultivator of conventional crops.

Married in a family having 13 acres of cultivable land and eight acres of barren land, it was compulsion for Bandana to support farm activities of her family for augmenting income. Improving farm productivity had been her prime concern since she actively started participating in farming.

She visited KVK in 2011 to seek advice from scientists regarding measures that could help increasing productivity of her agricultural land. Her visit marked beginning of her association with KVK. Bandana was advised about use of dung/compost by KVK personnel for increasing productivity.

They also provided her subsequent guidance which proved to be result oriented. With assistance of KVK personnel she was able to substantially increase productivity of her cultivable land. Out of total barren land, she also succeeded in turning 2.75 acres into cultivable land.

Having knack to do something new and inno-

vative, Bandana in course of farming developed a winnowing machine in 2012 with technical support of KVK. In acknowledgement of her innovation Bandana was selected for Mahindra Samridhi Award. She received cash prize of Rs 51000 for her innovation.

Her village selected under National Innovations on Climate Resilient Agriculture (NICRA) project, she learnt and adopted techniques of hydroponic fodder production, urea treatment of straw, silage making besides round the year production of green fodder, participating in different activities organized under NICRA project for villagers.

Having better placed herself in farm activities, Bandana decided to take up dairy farming in year 2016 in order to diversify. She had learnt nuances of animal rearing from her father, a veterinary doctor by profession. In fact basic idea of animal rearing proved motivating for Bandana to take up dairy farming.

She started new venture procuring 10 lactating cows. With 7–10-liters of milk produced by each cow, on average milk production in her dairy was around 70-80 liters per day. She was satisfied with quantity of milk produced in her dairy.

However, when it came to selling milk Bandana had to face problem in finding buyers to whom she could sell her produce at rate that could fetch

her remunerative price. Of the total quantity of milk she could produce through dairy farming, Bandana was able to sell only seven to eight liters of milk directly to buyers.

In light of the fact milk a perishable item cannot be preserved for long, it was compulsion for her to sell the remaining milk to middlemen at rate that ensured only marginal profit.

While she was struggling to ensure she could get remunerative price of milk, through KVK Bandana received an opportunity in February 2020 for participation in training programme on “Milk Products Development for Augmenting Income”. The training programme was being organized by West Bengal University of Animal and Fishery Sciences, Mohanpur, Nadia, West Bengal.

Taking note of problem being faced by Bandana in getting proper price of milk, her participation in training programme was arranged by KVK. Following participation in training programme, back home she started preparing milk products using techniques she learnt in course of training.

With minimal use of machinery, she started preparing paneer, whey drinks, curd, lassi, butter, milk and ghee. In preparation of value-added milk products Bandana largely followed standard methodologies. Depending upon availability of resources, she however introduced some

need-based modification so far standard methodology related to preparation of value-added milk product is concerned.

She prepares paneer after separating fat. The whey extracted during preparation of paneer is used by her in preparation of four different types of whey drinks. Similarly, she uses cream separated during preparation of paneer lassi and butter milk for preparing ghee. Bandana made it a point to stick to low-cost management system to make her venture profitable.

Previously she used to earn Rs 300 selling 10 Kg of milk. However, since she started preparing value added milk products with scientific and technical assistance of KVK she has been earning between Rs 450 to Rs 650 selling same quantity of milk.

She has an additional income of Rs 21.42 and Rs 11.64 respectively through sell of whey and ghee prepared from one-kilogram milk. Compared to her earning from sell of plain milk, Bandana has been earning almost four times more preparing value-added milk products.

With KVK support, she has provided training to 13 female farmers in her village regarding value addition of milk. To facilitate marketing of dairy products prepared by Bandana besides other in her village, what's App group has been created at behest of KVK. The producers of value-added

dairy products in village have been receiving on-line order through WhatsApp group.





Name: Nagendra Prasad

Age: 60 Yrs

Venture: Basmati rice farming

Village: Baliyari

Panchayat: Paksai

Block: Pakri Barawan

District: Nawada

Educational qualification: Graduation

Institution facilitating venture: KVK, Nawada

BASMATI GROWER EFFECTIVELY CONTROLS PEST INFESTATION WITH ORGANIC MIXTURE

Knack of experimenting with new ideas often leads to innovation. Nagendra Prasad a grower of Basmati variety of rice is among such people who have keen interest in doing new things and experimenting with new ideas.

A progressive farmer, he is a case in point to substantiate it is new ideas that many a times contributes in innovation. His knack for

experimenting with new ideas has helped him develop an organic mixture found effective in controlling pest infestation in crops.

The mixture prepared mainly using bark of Neem and Aak leaves contain some other ingredients such as tobacco stalk, leaves of herb locally referred as Bankarani or Putus apart from urine of cow. It was for the first time in 2014 Prasad

prepared the mixture and used it as pesticide for controlling aphid infestation in his standing mustard crop in 10 katha land.

The spray of mixture proved highly effective in controlling aphid infestation in mustard crop. Encouraged by success achieved in controlling aphid infestation, the organic mixture was used by Prasad again in 2016 for containing a disease

in brinjal plants due to which brinjals were found drying up. The spray of organic preparation in brinjal plants also proved useful in containing the disease.

The organic preparation was further used in 2019 by Prasad for controlling pest infestation in wheat crop. In his village, farmers in number of cases have started use of the organic preparation for pest control motivated by affectivity of the preparation.

The Krishi Vigyan Kendra (KVK), Nawada, extending all required scientific and technical assistance to Prasad in farming as well as in experimenting with new ideas, has already initiated process for scientifically validating affectivity of organic mixture in pest control and containing plant related diseases.

Prasad has been associated with KVK since 1984-85. After completing graduation, he decided to take up farming as livelihood motivated by the fact member of previous generations in his family in most cases used to pursue agriculture as occupation. After starting sugarcane farming initially in his six-acre agricultural land Prasad gradually shifted to cultivation of Basmati variety of rice.

He has experimented cultivation of different types of Basmati varieties. Acknowledging success of Prasad in producing good quality Basmati rice he was given Kissan Bhushan Purskar at district

level in 2007. The award carried cash prize of Rs two lakh. The Kissan Bhushan Purskar is given to successful farmers under Kissan Samman Yojana of state government.

Prasad received the prize for having produced 28 quintal rice of Basmati 1121 variety from 10-kilogram seed of the variety. At present he grows Basmati varieties that sell between Rs 60-Rs 80 per kilogram in local market. On an average Prasad produces 80 quintal Basmati rice annually.

Prior to 2007 Prasad used to produce approximately 10 quintals of Basmati rice annually. Currently his gross income from Basmati cultivation is approximately Rs 400000 per annum. From cultivation of wheat, pulses and oilseeds besides from horticultural produce his annual gross income is around Rs 3 lakh per annum.

Though compared to past at present Prasad is on a much better footing economically however he has not lost interest in experimenting with new ideas as well as doing something new. Having acquired know how of vermicomposting from KVK, he is also involved in production of vermicompost to fulfil his personal requirement.

As per Prasad the organic mixture he has been using for controlling pest infestation is highly cost effective. It costs between Rs 20- Rs 25 for preparing a litre of mixture, he claims. Prasad

says the mixture added in 60 litres of water could be used for spray in 1/2-acre agricultural land.

To substantiate his point, he cites relative expenditure on spray of available chemical and organic pesticides in 1/2-acre land compared to his organic mixture.

As per Prasad while spray of available chemical pesticides in 1/2 acre land would cost around Rs 250, spray of organic pesticide in same land area would cost Rs 150 approximately. Prasad plans to explore possibility of commercial production of his organic mixture provided affectivity of the mixture in pest control is established scientifically.





Name: Sanjit Kumar Kushwaha

Age: 36 Yrs

Venture: Lathyrus farming

Village: Manjhla Bigha

Panchayat: Behari Bigha

Block: Pandarak

District: Patna

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra, Agwanpur (Barh)

CULTIVATION OF FORGOTTEN CROP HELPS FARMER INCREASE INCOME

When Sanjit Kumar Kushwaha reintroduced cultivation of lathyrus or grass pea also referred as Khesari in local parlance many fellow farmers questioned his wisdom behind cultivating a forgotten crop. A resident of Manjhla Bigha village he revived farming of lathyrus or grass pea in 2018.

High return from lathyrus farming however proved it was wise decision on part of Kushwaha to revive cultivation of forgotten crop. It is not

that lathyrus or grass pea is a new crop for people in Manjhla Bigha. Farmers of the village used to grow lathyrus extensively in past.

In fact cultivation of draught tolerant high yielding legume crop was discontinued almost totally in Manjhla Bigha nearly a decade back. Government decision of discouraging production of the crop besides awareness among people that lathyrus or grass pea is not safe for human consumption led to gradual discontinuation of



cultivation.

It is not alone in Manjhla Bigha rather in entire state lathyrus became a forgotten crop with passage of time. Grass pea an economically significant crop in India earlier used to be grown extensively in Bihar, West Bengal, Odisha, Chhattisgarh and Madhya Pradesh.

Taking note high presence of neurotoxin, ODAP (β -oxalyl-L- α , β -diaminopropionic acid) in lathyrus which often led to lathyrism in human being, decision of discouraging cultivation of the crop had been taken at government level.

However with advancement of grass pea breeding programme two varieties namely Ratan and Prateek containing low (<0.1%) quantity

of ODAP were developed. Both the varieties safe for human consumption was subsequently recommended for cultivation.

A programme aimed at promoting cultivation of new varieties of lathyrus underway in state presently was initiated in 2018 jointly by Directorate of Extension, Bihar Agricultural University (BAU) and Department of Biotechnology, Ministry of Science and Technology, Govt. of India. The programme was started under Biotech-KISAN (Biotech-Krishi Innovation Science Application Network) Project.

Due to low cultivation cost lathyrus has high potential of increasing income of growers. The objective behind promoting new varieties was intended at augmenting earning of farmers apart from ensuring availability of low-cost legume for people.

Though Kushwaha had never grown grass pea in past however members of previous generation in his family used to cultivate lathyrus. It was last time in 2009 his family had taken up cultivation of lathyrus. Kushwaha decided to revive cultivation of lathyrus informed about the new varieties by university and KVK scientists, involved in execution of Biotech-Kisan Project.

He was provided seed of new varieties under the project for demonstration farming. He took

up farming of lathyrus in total one- acre land in 2018 including low and rice fallow land. With approximately 12 quintal produce, net income of Kushwaha from lathyrus farming was around Rs 31000 in first year.

In fact lathyrus farming was altogether a new experience for him taking into consideration he mainly used to grow paddy, wheat, onion and moong earlier. Encouraged by low input cost and high return, he cultivated lathyrus again in 2019 in more than 1/2 acre of land. With more than eight quintals produce his net income from lathyrus farming was Rs 24000 approximately in succeeding year.

Having cultivated lathyrus in 10 katha of land in current year he is looking forward to good harvest again. In last two years Kushwaha was

able to sell his produce at price varying between Rs 3500 per quintal to Rs 4500 per quintal. He is hopeful grass pea farming would fetch him good return again this year.

Kushwaha who earns between Rs 1.5 lakh to Rs 2 lakh growing paddy, wheat, onion and moong has been able to increase his income substantially since he started farming of lathyrus. On an average lathyrus farming fetches him amount between Rs 25000 to Rs 30000 annually.

Motivated by success of Kushwaha nearly 15 farmers in his area including adjoining Manikpur village has started cultivation of grass pea. In Pandarak block total area under lathyrus cultivation is approximately 25 acres at present. Kushwaha has made available seed to many farmers who have started grass pea cultivation

in recent past.

For participatory seed production Farmers Interest Groups (FIG's) have been constituted under Biotech Kissan Project by BAU scientists involved in execution of the project. The FIG's for participatory seed production have been formed taking note essentiality of building up seed stock of Ratan and Prateek for promoting the varieties.

The university has successfully overcome problem related to availability of seed of new varieties by building adequate seed stock. Due to easy availability of seed of new varieties the number of farmers who have revived cultivation of forgotten crop has increased substantially in state.





Name: Sanjay Kumar Singh

Age: 50 Yrs

Venture: Dragon fruit farming

Village: Mahinathpur

Panchyat: Mahinath

Block: Kodha

District: Katihar

Educational qualification: Intermediate

Institution facilitating venture: Krishi Vigyan Kendra, Katihar

FARMING OF LESS KNOWN FRUIT ENSURES BETTER FUTURE FOR KATI HAR FARMER

Taking into consideration dragon fruit is relatively less known fruit in this region there was risk involved for Sanjay Kumar Singh when he started growing dragon fruit. A farmer of Katihar district, Singh however went ahead with his plan of growing dragon fruit overlooking the uncertainties. The risk taken by him paid dividend. Singh received quite encouraging initial market response for his produce.

Primarily involved in farming of paddy, potato, banana and vegetables earlier, it was in 2018 he decided to explore possibility of growing dragon fruit. In fact, Singh was looking for options of replacing banana cultivation to some extent with another economically viable fruit when he came to know about nutrient rich dragon fruit through YouTube.

Though bit hesitant initially, he subsequently

decided to go ahead with farming of dragon fruit. Hopeful of good harvest of dragon fruit Singh looks forward to increasing his income substantially in future through farming of relatively lesser known fruit.

Initially procuring 600 seedlings of dragon fruit from Kolkata at rate of Rs 40 each, Singh started growing dragon fruit. Taking into consideration dragon fruit plants are creeper, he erected total 230 cement poles in 10 Katha land out of his total five acre agricultural land for growing fruits. Singh planted four plants around each pole to facilitate proper growth and help the plants climb on cement poles.

In his attempt of experimenting cultivation of a lesser known fruit he had support of scientists and other personnel of Krishi Vigyan Kendra (KVK), Katihar. The KVK scientists extended him all required technical and scientific assistance. Singh was also provided supplementary information related to dragon fruit by KVK personnel.

He reaped harvest of 6-7 kilogram of dragon fruit in 2019 from seedlings he had planted around a pole in 2018. In light of the fact, production of dragon fruit is substantially more in second and third year compared to first year total quantity of his produce increased substantially in subsequent years.

The first year proved really challenging for

Singh so far selling his produce was concerned. Due to the fact dragon fruit is less known fruit in state he was virtually at loss how to sell his produce. KVK extending handholding support to Singh in dragon fruit farming also helped him in making the fruit popular in the area.

To make the fruit popular, Singh gave them free of cost to some important people including doctors in his area who in turn helped in promotion of the fruit stating its nutritional value to others. He also approached fruit sellers for selling his produce.

The effort of KVK as well as his individual effort to popularize the fruit helped Singh sell his two quintals produce of first year at Rs 200 per kilogram. His earning from sell of his produce in first year was much less compared to his input cost.

The input cost of Singh included expenditure of Rs 1000 he had to incur on erecting each cement pole apart from his expenditure on purchase of seedlings. Though farming of dragon fruit was not economically viable for Singh in first year however he was sure next year would be definitely different for him.

In 2020 he had 10 quintals produce of dragon fruit with average yield of 10-15 kilogram from plants around each pole. Following increased production, things started looking up for him.

The second year also proved significant for Singh as he received supply order of dragon fruit from adjoining Purnia district apart from places in Katihar district.

In second year also he was able to sell his produce at rate of Rs 200 and above per kilogram. The dragon fruit having average shelf life of nearly one-month, post-harvest he contacted more fruit sellers besides people interested in dragon fruit. Singh registered gross income of above Rs 2 lakh in second year. His second-year income helped him recover input cost of farming to great extent. Singh is hopeful in succeeding years he would have above 24 quintal harvest of dragon fruit. He is confident third year onwards his net income from dragon fruit farming would increase considerably. Singh who on an average earns Rs 2 lakh annually from cultivation of conventional crops looks forward to double his income through dragon fruit farming.

The fellow farmers in number of cases discouraged Singh initially in regards to farming of relatively less known fruit. However, influenced by his success some farmers have already started dragon fruit farming. Taking together Kodha and Pothia blocks of Katihar district more than half a dozen farmers have started farming of dragon fruit. Many others are also contemplating to grow dragon fruit in future.

Taking into consideration dragon fruit is relatively less known fruit in this region there was risk involved for Sanjay Kumar Singh when he started growing dragon fruit. A farmer of Katihar district, Singh however went ahead with his plan of growing dragon fruit overlooking the uncertainties. The risk taken by him paid dividend. Singh received quite encouraging

initial market response for his produce.

Primarily involved in farming of paddy, potato, banana and vegetables earlier, it was in 2018 he decided to explore possibility of growing dragon fruit. In fact, Singh was looking for options of replacing banana cultivation to some extent with another economically viable fruit when he came to know about nutrient rich dragon fruit through

YouTube.

Though bit hesitant initially, he subsequently decided to go ahead with farming of dragon fruit. Hopeful of good harvest of dragon fruit Singh looks forward to increasing his income substantially in future through farming of relatively lesser known fruit.



Name: Sameer Chaudhary

Age: 31 Yrs

Venture: Mushroom farming

Village: Semapur

Panchayat: Bareta

Block: Barari

District: Katihar

Educational qualification: Master of Business Administration

Institution facilitating venture: Krishi Vigyan Kendra, Katihar

MASTER OF BUSINESS ADMINISTRATION REGISTERS SUCCESS IN MUSHROOM FARMING

It was course of destiny Sameer Chaudhary had to take up agriculture as livelihood. A Master of Business Administration (MBA), Choudhury however has no remorse compelled by circumstance he had to select agriculture as principal avocation.

He has successfully established himself as

progressive farmer though he had no previous experience in farming. The support of Krishi Vigyan Kendra (KVK), Katihar, significantly contributed in his success. He received all required scientific and technical support from KVK.

Chaudhary who joined navy after 10+2 level



education had to return home due to illness of his father. Following his return, he completed bachelor and MBA course in distance mode. Having nearly three acre of agricultural land, family of Chaudhary had been traditionally involved in farming of paddy and maize apart from banana. Since father of Chaudhary was teacher in a government school his family had to depend primarily on share croppers for carrying out farm activities. Chaudhary took overall charge of family farm activities 2013 onwards following his decision to pursue agriculture as livelihood. In course of pursuing agricultural activities, he observed paddy farming was not proving to be much lucrative with net income from paddy cultivation remaining restricted to little more than Rs 5000. Comparatively maize farming was proving profitable for Chaudhary with his net income from maize cultivation being more than Rs 50000 per annum. However he was experiencing problem in sowing maize crop since low lying land in which he used to cultivate maize remained water logged for long period. As post monsoon it took long time for waterlogged land to become dry, Chaudhary mostly could not take up sowing of maize crop in time.

The problem he experienced in sowing of maize crop in time, led him explore other options for supplementing his income. Choudhury, who had been in contact with Krishi Vigyan Kendra (KVK), was suggested several measures by KVK

scientists aimed at diversifying farm activities. Mushroom cultivation was among ideas he was given by KVK scientists for supplementing income.

Choudhary was initially bit hesitant about starting mushroom farming. However motivated by KVK scientists he joined a training programme on mushroom cultivation organized by NABARD in 2017. Subsequently he also participated in a training programme on mushroom cultivation organized at RAU, PUSA.

With scientific and technical assistance of KVK scientists Choudhury started micro level mushroom farming in 2017. He started growing mushroom in a small room of his house. The first-year produce was primarily for personal consumption.

In fact, Choudhury started commercial production of mushroom 2018 onwards. For large scale production of both button and oyster varieties of mushroom in 2018-19 he used nearly 500 separate bags for growing each of the varieties.

Choudhury was able to reap produce of 2-2.5 Kg from each bag which he sold at price between Rs 130-180 per kilogram. Though he had no previous idea regarding what should be his strategy for selling mushroom however he had no problem in selling his produce.

With purchasers from his village and outside had started approaching him, he had no problem in

ensuring door step sell of his produce. Taking into consideration advice of scientists Choudhary also started value addition of mushroom. He was extended technical support by KVK in value addition.

Choudhary dried sizeable portion of his produce for preparing mushroom powder. He sold more than 10 kg of mushroom powder at price between Rs 1000 to Rs 1100 per kg. Choudhary used mushroom powder also for preparing biscuits. High in demand, he was able to sell 50 kg mushroom biscuits at Rs 350 per kg.

Choudhury was in fact unable to meet demand of supply in case of biscuits. In 2018-19 he was able to register net income of more than Rs one lakh through sell of mushroom and value-added products of mushroom. Despite 2020 proved to be a lean year because of pandemic, Choudhury could earn around Rs 50000 through peak season sell of mushroom.

Though off season sell of mushroom remained comparatively low in 2020 however he was able to earn Rs 15000 despite constraints. With KVK support Choudhury looks forward to take up mushroom farming as well as value addition of mushroom in big way in future. With his support a female and a male farmer of his village have also started mushroom farming. Influenced by success of Choudhury many other in his village are also contemplating to take up mushroom farming in future

Name: Shashi Kumar

Age: 51 Yrs

Venture: Honey production

Village: Surhari

Panchayat: Bhabeja

Block: Manpur

District: Gaya

Educational qualification: Graduation

Institution facilitating venture: Krishi Vigyan Kendra, Gaya

GAYA FARMER PROVES HIS MET- TLE IN HONEY PRODUCTION

A farmer of Gaya district, Shashi Kumar always wanted to do something different. He never looked for any conventional employment opportunity after graduating due to his urge of skipping conventionality. He belonged to an agrarian family having 12 acres of agricultural land in adjoining Jehanabad district. Kumar used to assist his father in farming while he was studying.

His family used to grow mainly paddy, wheat and pulses. Prior to 1995 when Kumar used to assist his father in farming, on an average net income of his family was Rs one lakh per annum. The amount was hardly sufficient for sustenance of family members.

Since annual net income of family was proving grossly insufficient for descent living, Kumar wanted to take up allied agricultural activities instead of continuing traditional farming. He had been associated with Krishi Vigyan Kendra

(KVK), Gaya since he started assisting his father in farm activities. In course of his frequent interaction with scientists and other personnel of KVK, Kumar was able to develop ideas concerning viable allied agricultural activities.

Bee keeping and honey production was one of the ideas he developed following his interaction. Kumar subsequently had an opportunity of participating in training programme organized in RAU, PUSA on bee keeping and honey production. His participation in training programme besides his off and on interaction with KVK scientists helped him learn technicalities of bee keeping and honey production that proved turning point in his life. Starting with total 10 bee boxes in 1995, Kumar has total 600 boxes at present. He is among top honey producers of state. Since new beginning is difficult most of the times, in case of Kumar also beginning was not easy when he started honey production as livelihood occupation. He had to travel to far off places known for abundance of flowers with bee boxes. To facilitate growth of bee colonies in boxes Kumar keeps his boxes at places marked by abundance of flower. To fix his boxes, Kumar travels to Jharkhand, Chhattisgarh besides places located in area of state extending in northern side of river Ganga between Muzaffarpur and Purnia. He travels to different far-off places in the period

between October to April. Kumar produced 500 kilogram of honey first time he had travelled to Jharkhand for honey collection with ten boxes. From sell proceeds of first year he was able to register net income of Rs 15000. By 1996 he owned 25 boxes. Kumar kept on increasing number of boxes every year by rolling his profit earning. Simultaneously for honey collection he also kept exploring new areas marked by abundance of flower. In Jharkhand and Chhattisgarh Kumar mainly visits areas where there are trees of drumstick besides places where cultivation of Niger a herb having botanical name *Guizotia abyssinica* is grown for edible oil and seed. Within the state for collection of honey he mainly travels to places in northern side of Ganga where Litchi orchards are located apart from places where mustard is cultivated. Kumar produces 2400 kilogram of honey with 600 bee boxes at his disposal. His annual net income is Rs six lakh from honey production. Kumar established a testing, processing and packaging unit Shiva Honey in 1997 seeking bank loan under PMRY. He sells honey in one kilogram, 1/2-kilogram, 300- gram and 50-gram packs after proper processing and packaging. Kumar purchases nearly 100 tone honey from other honey producers apart from honey he himself produces. Altogether Kumar processes nearly 125 tone

honey in his processing unit and sells it in packs of different quantity. He never looked back since he took to honey production for livelihood. In 2004 Kumar started a company M/S Shiva Agro Natural Product (P) Ltd, seeking term loan of Rs 45 lakh from SIDBI. Subsequently in 2011 with financial assistance of state government, Kumar floated a new company M/S Kunwar Apiary, involving project cost of Rs 1.24 crore.

A leading honey producer of state, he sells his product at places in south India besides also supplies honey to well-known companies involved in sell of packed honey. Within the state Kumar supplies his product to various outlets and malls including Khadi Mall in Patna.

His on an average net income is Rs 12 lakh per annum at present. Extending him handholding support since he started honey production, KVK had significantly helped Kumar whenever he had been in need of help for disease prevention in bees. He has provided employment to 50 people who are involved in different works related to honey production including processing and packaging of honey. Kumar, as resource person provides training of bee keeping and honey production to participants at training programmes organized by KVK. He looks forward to start export of honey particularly litchi honey in future.



Name: Md Aftab Alam

Age: 27 Yrs

Venture: Makhana farming

Village: Dewdha

Panchayat: Malhair

Block: Kasba

District: Purnea

Educational qualification: Graduate

**Institution facilitating venture: KVK,
Jalalgarh, Purnea**

MAKHANA FARMING MAKE LIFE BETTER FOR YOUNG FARMER

Increasing family income was a major challenge for Aftab Alam in past. He belonged to an agrarian family primarily dependent on agricultural income. With total family income hardly sufficient for sustenance of members, for Alam increasing income of family was priority.

Elder among five siblings, he was keen on ensuring better life for members of his family. However Alam was not sure about course of action that could help him attain his objective.

After graduating in 2012 alike other young people in his age group he started looking for job in organized sector. With his efforts to seek job in organized sector failing to yield desired result, things proved really difficult for Alam.

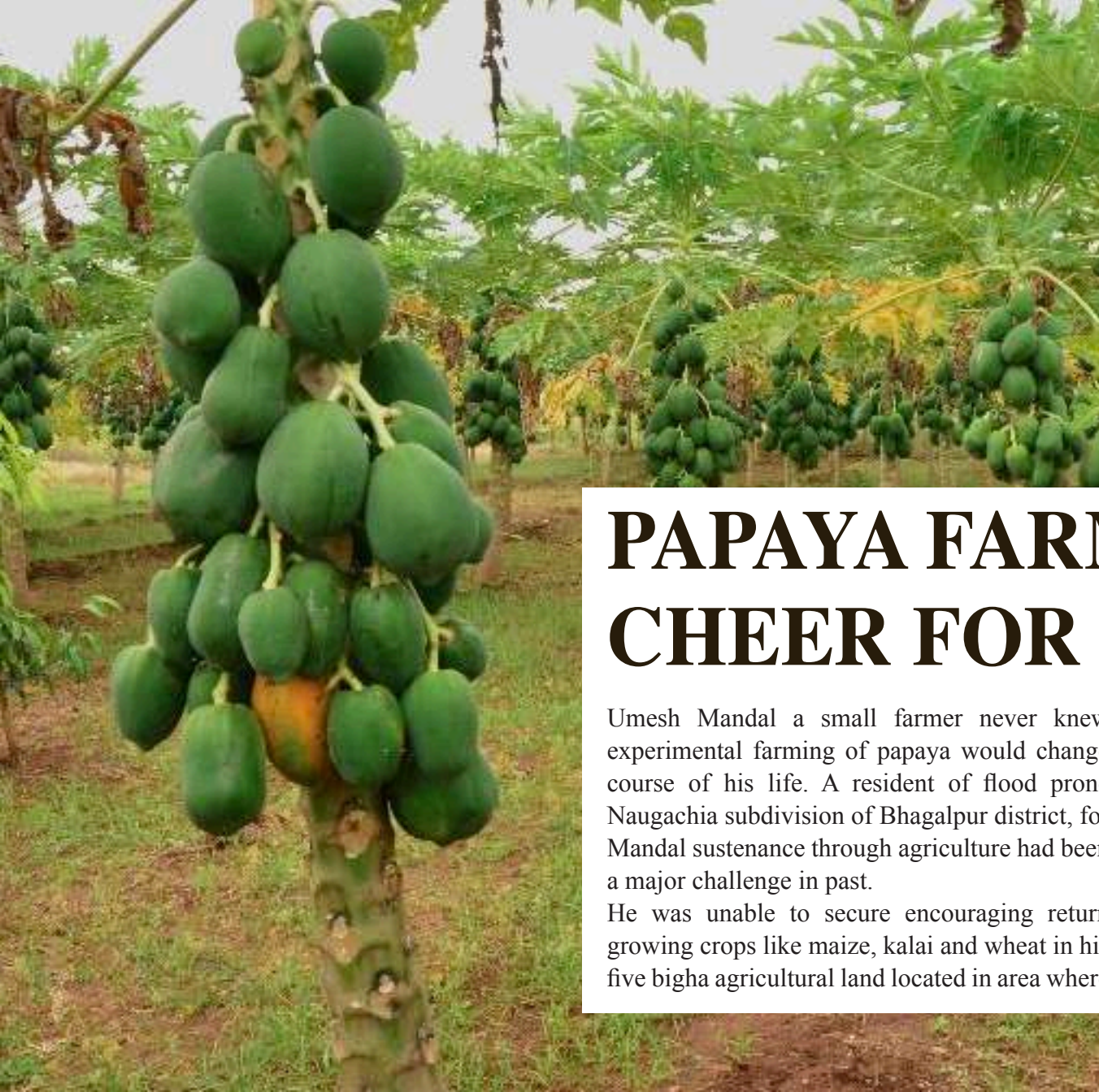
He was virtually at loss so far increasing family income was concerned. Farming of conventional crops paddy and maize undertaken by his family in four- acre agricultural land failed to ensure desired return. Net income remaining restricted to

one lakh rupee per annum from paddy and maize cultivation, things remained really difficult for family of Alam in financial front. Crop damage due to flood almost every year was a major reason cultivation of paddy and wheat was not proving beneficial for his family. Two out of total four acre agricultural land of family located in low lying area, the crop prospect generally used to be marred due to water logging. Some close relatives already involved in Makhana farming suggested Alam to start Makhana farming in low lying agricultural land instead of cultivating conventional crops. With no previous experience of Makhana farming initially he was slightly hesitant about starting new venture. However, Alam decided to take a chance. He had to never look back again since he started makhana farming. In 2014, it was for the first time Alam cultivated makhana in two acres low lying agricultural land. With encouraging net return of more than Rs 25000 in first year he decided to extend area of cultivation in subsequent year. Alam took two-acre land on lease at rate between Rs 12000 to Rs 15000 per acre in 2015 for increasing area of cultivation. Same year he cultivated makhana in total four-acre land. Alam further increased area of cultivation in 2016 taking into consideration high return. He registered net income of more

than Rs 1 lakh through cultivation of makhana in total nine -acre land. Profit earning of Alam increased further since he came in contact with scientists and other personnel of Krishi Vigyan Kendra (KVK), Purnea in 2017. He was provided handholding by KVK in successful makhana farming. Alam was provided opportunity of participating in a training programme organized by KVK following survey of plot he had been using for makhana cultivation. Participation in training programme helped him get acquainted with finer points of farming. Alam subsequently came to know about Sabour Makhana -1 in 2019 from KVK scientists. Sabour Makhana -1, a new makhana variety was developed at Bihar Agriculture University (BAU), Sabour. In 2019-20, he cultivated the new variety in 20-acre land. Alam had been informed by KVK scientists that cultivation of new variety would substantially increase his yield. Apart from 30-kilogram seed of the new variety he was also provided two bag urea, one bag DAP, 25 kilograms of potash, one bag neem cake and two-liter neem oil free of cost from KVK for cultivating Sabour Makhana-1. In fact, cultivation of Sabour Makhana -1 proved game changer for Alam. Compared to past when he used to record seven to eight quintal per acre yield, his yield went up 11 to 12 quintal per acre since he started cultivating new makhana variety.

Due to increased yield Alam was able to increase his net income considerably. He was able to register on an average net income between Rs 12000-Rs 15000 from per acre yield. During pandemic Alam was able to take up cultivation of makhana in only in 16-acres land. However despite constraints his net income was approximately Rs three lakh. Taking into account high return of makhana farming, he looks forward to further increasing area of cultivation. Alam also plans to start preparing makhana in future from makhana fruit commonly referred as gorja in local parlance. He presently sells makhana fruit to people involved in preparation of makhana from makhana fruit. Preparation of final product Alam believes would help him increase his profit earning substantially. He plans to seek assistance of KVK for the purpose.





Name: Umesh Mandal

Age: 70Yrs

Venture: Papaya Farming

Village: Sadhuwa

Panchayat: Sadhuwa Chapar

Block: Rangra Chowk

District: Bhagalpur

Educational qualification: Literate

Institution facilitating venture: KVK, Sabour

PAPAYA FARMING BRINGS CHEER FOR FARMER

Umesh Mandal a small farmer never knew experimental farming of papaya would change course of his life. A resident of flood prone Naugachia subdivision of Bhagalpur district, for Mandal sustenance through agriculture had been a major challenge in past.

He was unable to secure encouraging return growing crops like maize, kalai and wheat in his five bigha agricultural land located in area where

soil erosion caused by river Kosi is a serious problem. Cultivation of cauliflower, chilly and ladies finger though supplemented his income slightly however his net income was only little above Rs 20000 per annum.

Mandal despite efforts was unable to increase his income primarily due to problem of flood and soil erosion. He had started practicing agriculture for livelihood in 1972 while he was 25 Yrs old.

Mandal had responsibility of looking after his family as he was eldest among three siblings.

Life used to be really difficult for him in past. Mandal looked for options of diversifying farming in order to augment his income. It was in 2007 he somehow came to know papaya farming could be viable option for increasing income. As papaya farming was not popular in his area at that time Mandal decided to take up experimental farming of the fruit. He took 1.5-acre land on lease for the purpose. Mandal started papaya farming purchasing 90-gram seed from shop of a seed dealer located at district headquarter.

He was able to grow 800 plants from seeds he had purchased. The experimental farming of papaya proved highly lucrative for Mandal as each plant produced on an average 40 kilograms of fruit. He registered net income of Rs 300000 from experimental farming of papaya selling his produce at rate between Rs six to Rs eight per kilogram.

Mandal subsequently decided to concentrate mainly on papaya cultivation taking into account encouraging return. His association with scientists of Bihar Agricultural University and Krishi Vigyan Kendra (KVK), Sabour helped him learn finer aspects of papaya cultivation.

It was in 2009-10, Mandal started visiting

university as well as KVK for scientific assistance needed in connection with papaya farming. Handholding support extended by university and KVK scientists contributed immensely in his success as papaya grower. Participating in training programmes organized by KVK, Mandal could learn certain techniques that proved useful in papaya farming.

It was from scientists of university and KVK he formed idea related to use of compost for organic farming of papaya. In course of time Mandal extended his area of papaya farming from 1.5 acre to 2.5 acre, taking additional land on lease.

His total quantity of produce increased considerably in 2013 due to better productivity of plants grown from papaya seeds he had produced. Mandal has more than 2000 papaya plant in his orchard at present. The average fruit yield of each plant is approximately 50 kilograms.

Mandal, one of the major papaya growers in his area has hardly any problem in selling his produce. The bulk papaya purchasers of this district as well as adjoining districts generally purchase his produce from doorstep at rate of Rs 20 per kilogram.

Mandal has also established nursery in two bigha land for growing saplings of papaya plant. From seed he had prepared in 2013, Mandal grows

sapling of papaya plant in his nursery. Apart from fulfilling his own requirement of papaya sapling from his nursery, he sells the remaining saplings to other papaya growers. There is high demand of saplings grown by Mandal in his nursery. Booking for purchase starts even before saplings mature.

Normally it is in month of October people pay booking amount to Mandal for purchasing sapling. In the previous year (2020) he had booking for supply of 40000 saplings. Annual net income of Mandal is more than Rs ten lakh taking together his income from farming and nursery.

While his net income from nursery is above Rs three lakhs, his net earnings from papaya farming is more than Rs seven lakhs per annum. In fact, Mandal is icon for many in his area who have taken to papaya cultivation motivated by his success.

It would not be exaggeration to say successful papaya farming by Mandal has popularized cultivation of the fruit in adjoining Katihar and Madhepura districts apart from different areas of Naugachia subdivision in this district.

Farmers in many cases have taken to papaya farming in Kursela and Pothia areas of Katihar district besides Chausa area of Madhepura district motivated by Mandal. Taking together



area falling under Chausa block of Madhepura district and Sadhuwa Chapar in Rangra Chowk block of Naugachia subdivision in this district, more than 50 farmers are presently involved in

papaya farming.

As per locals, papaya is grown in more than 40-acre land in the area. With his expertise Mandal is guide for people who want to start papaya

farming. As resource person he also imparts training to participants in training programmes organized on cultivation of the fruit by Bihar Agricultural University.



Name: Ranjan Sharma

Age: 43 Yrs

Venture: Fish farming

Village: Paharpura

Panchayat: Khadasin

Block: Bansi

District: Arwal

Educational qualification: Matriculate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Arwal



URGE OF EXPERIMENTING NEW FACILITATES GROWTH

It was his knack for experimenting new things that helped Ranjan Sharma enormously in ensuring growth in farming. A progressive farmer having 32-acre agricultural land holding, he could have easily limited himself to farming of conventional crops. However, Sharma who valued growth immensely was always keen on experimenting new for the purpose. With passage of time, he

has diversified by undertaking cultivation of new crops including vegetables and fruits apart from introduction of pisciculture. Compared to past when he took agriculture as livelihood occupation, Sharma has sizably increased his income by expanding farm activities. The KVK support contributed significantly in his growth. Sharma was forced to discontinue further study

after death of his father in 1988 as he had to shoulder responsibility of looking after his family. It was in 1997 he took charge of family farm activities. Sharma started growing conventional crops namely paddy, wheat, masoor and chana after taking charge of family farm activities. The members of his previous generation also used to grow same crops. Net income of Sharma

was around Rs 1.25 lakh from cultivation of conventional crops. Despite satisfactory income he wanted to diversify, aware of the fact growth was essential for avoiding income stagnation.

Sharma keen on farm diversification started growing capsicum. He conceived idea of capsicum farming after some people of his village staying at Pune told him that he could sizably increase his income through capsicum farming. With their help Sharma managed to procure seed of capsicum from Pune. Despite good return from capsicum farming, he subsequently discontinued capsicum cultivation as he had to face problem in selling his produce at local level. Sharma had undertaken farming of capsicum for three years since 2002. He started cultivating a variety of onion grown in rainy season, following discontinuation of capsicum farming. He had heard about the onion variety from some people of his village who used to stay at Nasik for earning livelihood. Though Sharma didn't pay much heed initially on information provided by his co-villagers however he seriously started contemplating about growing the variety when he saw cultivation of the onion variety in a village located in Aurangabad district. In due course he started growing the variety procuring seed from Patna. Net income of Sharma was Rs 50000 per acre from onion cultivation. After

cultivating said variety of onion for nearly six consecutive years, he decided to discontinue onion cultivation because of loss he had to incur both in case of excessive and deficient rainfall. Meanwhile Sharma adopted zero tillage method for growing major conventional crops. He learnt technicalities of the method from KVK scientists. Apart from upgrading Sharma technically, he was also made available quality paddy seeds by KVK for five years. His present annual net income is between Rs five lakh to Rs six lakh from farming of conventional crops. However, introduction of fish farming proved real game changer in case of Sharma. His overall income increased considerably after he started fish culture. Sharma was motivated to take up pisciculture seeing adoption of fish based integrated farming system by farmers of Biharsharif district in number of cases. It was in 2016 he started fish farming digging pond in three Katha land. Sharma was provided more than Rs 20000 to meet expenses of digging the pond under government scheme aimed at promotion of water conservation. He was helped by KVK in securing benefits of government scheme. Sharma started culture of pangasius fish in the newly created pond. The initial result of fish farming however proved to be discouraging for Sharma. He had to incur loss as fish spawns and fry in pond were eaten up by

snakes and birds in number of cases. The initial loss however failed to dampen spirit of Sharma. Taking up fish farming with renewed vigour, he created an additional pond spread over one acre land. In 2017, he produced 100 quintal pangasius fish following package of practices suggested by KVK scientists. His net income was more than Rs three lakh from fish farming. Encouraged by his success, he created two more ponds respectively in twenty -five Katha and four Katha land. Sharma presently having total four ponds produces more than 225 quintal fish. Of late he has also introduced farming of fish varieties Rohu and Catla apart from pangasius. However, he continues to culture mainly pangasius variety because farming of the variety is easy compared to other varieties. His produce of pangasius fish is more than 25 quintals from each pond. Handholding by KVK helped Sharma significantly in ensuring growth of his fish farming venture. At present his net income is around Rs 6.5 lakh per annum from fish farming. Sharma aims at taking up farming of fish fingerlings of Rohu and Catla varieties in future. Motivated by his success, number of farmers in his village as well as adjoining villages have started fish farming. Sharma was first to have introduced pisciculture in his village.

Name: Bina Devi

Age: 42 Yrs

Venture: Mushroom farming

Village: Tikari

Panchayat: Dhoeri

Block: Tetiabamber

District: Munger

Educational qualification: Literate

Institution facilitating venture: Krishi Vigyan

Kendra, Munger

MUSHROOM LADY OF TIKARI VILLAGE BECOMES ROLE MODEL OF EMPOWERMENT

In remote nondescript Tikari village of Munger district even a stranger would have no problem in locating house of Bina Devi. Ask anybody in village about her, the concerned person without delay would tell you about Bina Devi and also guide you to her place. It is not alone in Tikari village rather in majority of adjoining villages of Tetiabamber block she needs no special mention

to be recognized. Recipient of Nari Shakti Pursaskar, 2020, a national award given in recognition of exceptional work done for women empowerment, Bina Devi is better known as mushroom lady in the area. Having successfully overcome odds of life by achieving economic self-reliance through mushroom farming, Bina Devi has become role model of many women.

A mother of three son and a daughter, life had been difficult for Bina Devi in past. With meagre income of her husband, proper upbringing of her children as well as running her family had been major challenge for Bina Devi. To supplement family income, earlier she took to farming in two-acre unused family farm land. Though Bina Devi had no previous experience of farming however utilizing knowledge she had gained seeing her father and other relatives work in field she took to cultivation of paddy, wheat beside other crops. Through farming she was able to add Rs 30000-40000 annually in family income. However, this was hardly sufficient for Bina Devi to meet expenditure of family and ensure quality education for her children. Things started looking up for her after Tikari village was adopted by Bihar Agricultural University (BAU), Sabour in 2013 for promoting mushroom cultivation. Taking note of livelihood problem of people in remote village, the university decided to promote mushroom cultivation adopting the village. More than 400 people were provided training for the purpose by scientists of university and Krishi Vigyan Kendra (KVK), Munger. The training programme on mushroom cultivation organized in village by university primarily focused on imparting training to female population of village. Post training each

participant was provided a mushroom bag and spawn to start farming. Bina Devi, a participant in training programme was also provided bag and spawn to begin mushroom farming. Having started farming with 10 bags each of one kilogram she was able to register net income of Rs 4000 growing oyster variety of mushroom. First time Bina Devi started mushroom farming, she had to use space under her bed for the purpose due to space constraint in her house. Encouraged by high return, she subsequently started using 1000 bags for growing mushroom. Her net income from mushroom farming increased between Rs 20000 to Rs 25000, since she started using more bags for farming. The annual net income of Bina Devi is more than Rs 1.50 lakh at present taking together her income from mushroom farming and other allied agricultural activities. Despite some initial problem in finding buyers for her produce subsequently she successfully developed contact with mushroom sellers at Kharagpur, Tarapur and Munger. At present mushroom sellers mostly pick up her produce from doorstep. Having substantially increased her income Bina Devi has made arrangement of quality education for her children. For her as well as her family members life is much better now. With passage of time Bina Devi has mastered nuances of mushroom farming, she also

provides training to people interested in growing mushroom. Well acknowledged as master trainer, people from different districts engage her for imparting training. Accompanied by her husband she visits places in different districts for imparting training. She is remunerated at rate of Rs 1000 per day for imparting training, which is an additional source of income for Bina Devi. Also contributing in promotion of mushroom farming, she has formed 12 groups of mushroom growers consisting total 142 members. The women members of the group in number of cases are linked with SHG's formed under JEEVIKA. Her initiative of forming group of mushroom growers besides popularizing farming of organic mushroom is being partnered by KVK, Munger. Production of organic mushroom has increased sizably in Tikari and other adjoining villages. The commercial production of organic mushroom has registered manifold increase in the area particularly in Tikari, the village has been declared as mushroom gram by KVK, Munger. In recognition of her exceptional work aimed at empowerment of women, Bina Devi received Nari Shakti Purskar from President of India at a function held at Delhi this year. Earlier also her efforts have been acknowledged at different level.



Name: Binod Kumar Singh

Age: 58 Yrs

Village: Nawada

Block: Sherghati

Panchayat: Srirampur

District: Gaya

Venture: Lathyrus farming

Educational qualification: Intermediate

Institution facilitating venture: Bihar Agricultural University, Sabour

HIGH RETURN OF LATHYRUS FARMING PROVES ATTRACTIVE FOR FARMER

For Binod Kumar Singh lathyrus farming was not a comfortable idea when a proposal for the same was put forward before him by KVK scientists. A progressive farmer, the agricultural holding of Singh is spread over 14 acre land. He mainly grows paddy and wheat apart from pulses and oilseeds.

It was in 2018 the scientists involved in implementation of Biotech Kissan Project approached Singh for farming of lathyrus also known as grass pea. Cultivation of Ratan and Prateek two new grass pea varieties having low ODAP content is being promoted by Bihar Agricultural University (BAU) under Biotech Kissan Project, funded by Department

of Biotechnology, Ministry of Science and Technology, Government of India.

Family members of Singh used to cultivate grass pea in past. However, with passage of time they totally discontinued lathyrus farming. It was last time in 1978 cultivation of grass pea had been taken up by his family in 50 bigha land.

Taking into consideration adverse effect of lathyrus consumption on human health besides decreasing demand of grass pea for animal feed led to total discontinuation of lathyrus farming by family of Singh. With tractors replacing animal driven plough, demand of grass pea provided as feed to ox in past had registered drop.

Singh himself had never cultivated lathyrus. Though he was willing to diversify farming however he was hesitant to take up cultivation of grass pea. Singh was hesitant primarily because it was in back of his mind that lathyrus is not safe for human consumption. He was also not very sure about present market demand of lathyrus. Singh however was convinced by scientists associated with the project that new grass pea varieties are totally safe for human consumption. He was further told by scientists that cultivation of new grass pea varieties would be a profitable venture. Singh despite having reservation agreed to start lathyrus farming on trial basis taking note information provided by scientists regarding the new varieties. He was provided seed of lathyrus from KVK. In 2018, Singh cultivated Ratan variety of lathyrus in approximately one acre of land. He reaped nine quintal harvest, which he sold at rate of Rs 4100 per quintal.

With input cost of cultivation remaining restricted between Rs 2500-Rs 3000, Singh registered attractive net income selling his produce. Contrary to his apprehension, he hardly had any problem in selling his produce. Singh simply had to convince the food grain dealers that his produce was totally safe for human consumption.

Well acquainted with the dealers, he informed

them that researched lathyrus varieties have been developed primarily for safe for human consumption. The first- year experience of grass pea cultivation proving highly encouraging for Singh, he decided to cultivate grass pea again next year.

In 2019, he cultivated lathyrus almost in same one acre area. Provided seed by KVK, he cultivated Ratan variety of lathyrus once again. Though he reaped good harvest of nine quintal however his net income from grass pea cultivation in second year was not that encouraging compared to first year. Attempt of Singh to prepare and sell seed of lathyrus had failed to work as per plan, contributed in his comparatively low income in second year.

With market rate of grass pea fluctuating between Rs 2500 -Rs 3000, his net income was slightly less compared to first year. However by and large, Singh was satisfied with his income. He decided to further increase area under lathyrus cultivation in succeeding years.

Singh introduced cultivation of Prateek in subsequent years. He is generally able to sell his produce presently at approximate rate of Rs 3200 per quintal. Annual income of Singh has increased between Rs 2.5 lakh to Rs 3.0 lakh from earlier Rs 2.0 lakh since he started lathyrus farming. Influenced by Singh more than 20

farmers in village of Singh have started lathyrus farming.

Total area under lathyrus cultivation is around 23 acres presently in Nawada village. In adjoining Gurwa village also people have taken to grass pea cultivation in number of cases. Roughly lathyrus cultivation is being undertaken in approximately 12 acres of land in Gurwa village.





Name: Sanjeev Kumar Choudhary

Age: 47 Yrs

Venture: Farming of aromatic plant

Village: Laxmipur Bhagwati

Panchyat: Laxmipur Bhagwati

Block: Kumarkhand

District: Madhepura

Educational qualification: I. Com

Institution facilitating venture: KVK, Madhepura

MIX OF CONVENTIONAL AND UNCONVENTIONAL FARMING PROVES BOON FOR FARMER

When Sanjeev Kumar Choudhary started farming in 1994 his family used to grow conventional crops paddy, maize, wheat and jute. After getting involved in family farm activities he gradually introduced farming of unconventional crops. Choudhary started growing aromatic plants. He however did not discontinue farming of

conventional crops totally while experimenting farming of aromatic plants.

Decision of growing both conventional and unconventional crops has helped Choudhary increase his income substantially. At present he grows paddy and maize besides mentha and lemon grass. The support provided by KVK,

Madhepura, significantly helped Choudhary in introducing farming of unconventional crops. Choudhary did not take up agriculture as occupation by choice. In fact, he was forced to do so as things became difficult for his family following death of his father in 1986. Choudhary was unable to continue study further after completion of intermediate level education due to financial problem in family. He tried his luck in business before his involvement in agricultural activity. Ultimately Choudhary decided to look after agricultural activities of family. His income from cultivation of conventional crops however was not to the desired extent. For supplementing income, Choudhary wanted to do something different in field of agriculture. It was few years after he made agriculture his livelihood occupation, an acquaintance residing in adjoining Khagaria district suggested him that he should explore possibility of farming aromatic and medicinal plants. Farming of aromatic and medicinal plants already popular in Khagaria district had also started picking up in his village by that time. Choudhary who had been receiving all required support from KVK since he started farming, learnt package and practices related to farming of aromatic and medicinal plants participating in training programme organized by KVK. He subsequently started farming of

mentha and lemon grass procuring seed and planting materials from Jhansi and Patna. The handholding support of KVK proved crucial for him in beginning cultivation of aromatic plants.

Choudhary gradually increased area under mentha and lemon grass cultivation taking into account high return he could register growing mentha and lemon grass. In thirty-acre agricultural holding of his family, at present he grows mentha and lemon grass respectively in five acre and one acre area. Choudhary has also introduced banana cultivation in a portion of his farm land. Easy availability of tissue culture banana plants produced at Bihar Agricultural University (BAU) tissue culture lab through KVK ham led him start banana cultivation. Choudhary continues to cultivate paddy and maize in a sizeable portion of land. He however has cut down wheat cultivation sizably in recent years due to crop loss he had to suffer because of rats. Rodent menace is rampant in area where village of Chowdhary is located. Taking into consideration crop loss he has to suffer because of rats at present Chowdhary grows wheat only for domestic consumption. His decision of beginning cultivation of aromatic plants was also motivated by the fact rodents generally do not damage crop of mentha and lemon grass. With on an average 45 Kg per acre yield, net income of

Choudhary is Rs 33750 from mentha cultivation. He incurs input cost of Rs 11250 approximately for mentha farming in one acre land.

Net income of Choudhary is approximately Rs 110000 from lemon grass farming with on an average 135 Kg per acre yield. His expenditure is approximately Rs 25000 for farming of lemon grass in one acre area.

Mentha and lemon grass cultivation has picked up considerably of late in village of Choudhary. At present in approximately 150 acre land farming of aromatic plant is undertaken in his village. Mechanized units for extracting mentha and lemon grass oil have been commissioned in his village by people in certain cases after farming of aromatic plants became popular in the area. Choudhary supplies mentha and lemon grass oil to dealers at Patna besides at other places after getting oil extracted from his produce at mechanized units available in his village.

Banana cultivation also fetching him good return, his overall income has increased substantially. While in initial years when Choudhary used to grow only conventional crops his income was restricted between Rs 1-1.5 lakh per year. Since the time he started growing unconventional crops along with conventional crops he has been registering income between Rs 9-10 lakh per annum.



Rupesh Kumar Choudhary

Age: 41 yrs

Venture: Farm Implement Bank

Village: Uprama

Panchayat: Katchapar Leelatari

Block: Rajoun

District: Banka

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Banka

INCOME OF FARMER ZOOMS,

COURTESY FARM MECHANIZATION & MACHINERY BANK

Though Rupesh Kumar Choudhury has not induced any major change in crop cycle that previous generation members in his family used to follow however he has initiated process of mechanizing farm activities departing from earlier practice of manual farming. He has been able to increase his income considerably in

recent years as partial mechanization has helped him reduce his input cost of farming sizably.

Choudhury, who has not limited himself only to introduction of farm machines for diversifying, has also established a farm machinery bank. Establishment of farm machinery bank has added to his income and has also popularized

mechanized farming in the area.

Born in family having agrarian background, Choudhury developed knack for farming as he grew up. However, after completing graduation, he started looking for government job. Subsequently Choudhury took up job in a private company dealing in fertilizer and chemical.

After serving for brief period, he decided to quit dissatisfied with his job profile.

After leaving job, Choudhury decided to take up farming as livelihood occupation. Since 2004 he engaged himself in farm activities. In his 13-acre agricultural land Choudhury started growing same conventional crops his family used to cultivate earlier.

Choudhary mainly took up cultivation of paddy in Kharif season taking note topography of his land was ideally suited only for growing paddy. Making slight change in crop cycle followed by his father as well as other members of his previous generation he started cultivating wheat, oilseed and pulses in alternate year during Rabi season.

The practice proved beneficial in regards to crop yield. Cultivation of moong as summer crop was another change in crop cycle that was introduced by Choudhury. To have sufficient time for growing summer crop, he ensured harvest of paddy in the period between November 1 and November 10.

Choudhury also started paira cropping by sowing lathyrus before harvest of paddy. With eight quintal per acre yield, lathyrus cultivation brought high return for him. Compared to his net

income of Rs 1.20 lakh in 2004 when he began farming for livelihood, present net income of Choudhury is around five lakhs from farming of Kharif and Rabi crop.

Having succeeded in reducing input cost of farming through partial



mechanization of farm activities, he looks forward to increased use of machines for farming in future. In fact, Choudhury

became interested in farm mechanization after he saw use of KVK farm machines in promotion of climate resilient agriculture (CRA) under Jal Jeevan Haryali programme.

His visit to KVK in 2006 marked beginning of his association with scientists and other personnel of the institution. Choudhury had been to KVK for the first-time seeking rhizobium culture, useful in cultivation of leguminous crop. He was made available rhizobium culture and was subsequently provided seed of different crops by KVK for trial farming.

Handholding by KVK helped Choudhury considerably in mechanizing farm activities. It was first time in 2009 he started using rotavator, an implement used in seed bed preparation. Choudhury also started no till cultivation same year using zero tillage machine. He hired the implement and machine from one of his friends.

In fact, it was on motivation of Choudhury his said friend had purchased rotavator and zero tillage machine. Subsequently he also started using happy seeder and multi crop planter machines

for mechanized farming. Choudhary began using happy seeder by ensuring availability of the machine through custom hiring.

He subsequently established private farm implement bank procuring number of farm machines including laser land leveller, multi crop planter, rotavator and zero tillage machine in the period between 2019-2020. Framers residing in nearly 20- kilometre radius area from his village in number of cases hire machines and implements from his bank.

At present net income of Choudhury is more than Rs 1.5 lakh per annum from his farm implement bank. He was first in his village to start use of battery-operated sprayer. Chowdhury who made farmers aware about utility of battery-operated sprayer subsequently started business of selling sprayers.

He ensured supply of sprayers to farmers at 40% less cost compared to market price of battery-operated sprayers. Following effort of Choudhury his native village Uprama has become one of the major villages of Banka district where battery operated sprayers are being used by maximum number of people.

He significantly contributed in popularizing micro irrigation system among farmers in his village as well as adjoining villages. Chowdhury was also first to introduce micro irrigation in his

village by commissioning micro irrigation system in his 10 bigha agricultural plot. Motivated by him number of other farmers in his village also adopted micro irrigation system.

For further diversifying activities, Choudhury had taken up seed production since 2006 following his participation in training programme organized at KVK. With KVK assistance he is primarily involved in production of paddy and wheat seed. On an average he produces 50 quintal seed of paddy and 100 quintal seed of wheat in a year. Choudhury has created mechanized facility for processing and grading of seeds.

Having advanced facilities at his disposal he makes available superior quality graded seeds to farmers in his area. On an average his net income is Rs 35000 per annum from seed production activity. His overall net income from agricultural activities is approximately Rs five lakh per annum.

Choudhury makes it a point to share with farmers information available with him related to latest in field of agriculture apart from information concerning government schemes meant for farmers. He also contributes in popularizing KVK programmes in his area. Success of Choudhury has made him role model for many in his area.





Name: Dilip Kumar

Age: 47 yrs

Venture: Dairy farming

Village: Jhunathi

Panchayat: Nagwan

Block: Karpi

District: Arwal

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Arwal

DAIRY FARMING BRINGS PROSPERITY FOR FARMER

Life proved really difficult for Dilip Kumar at one point of time in absence of adequate resources to make ends meet. Previously employed as site manager in a private company at Chhattisgarh, he used to earn Rs 6000 per month. With his

meagre salary Kumar had to face problem in fulfilling requirement of his family. Ensuring quality education for his children was one of his major concerns.

Kumar found job opportunity after graduating in

1999. Youngest among four siblings, he decided to avail the opportunity since he wanted to break family tradition by taking up routine job in organized sector. In his extended family farming is livelihood of number of family members apart from his father and elder brothers.

His own family has 12-acre agricultural land. By taking additional six acre land on lease farming is undertaken by his family in total 18-acre land. Though Kumar had opportunity to opt farming as livelihood however his preference for job in organized sector led him migrate to Chhattisgarh. He was never comfortable with his job primarily due to low salary. Ultimately in 2007 he decided to quit job and return to his village. Back in his village he decided to establish dairy.

Kumar had hardly any knowledge related to dairy farming barring some previous experience of looking after cows, his family reared in past. His decision of establishing dairy was also influenced by information he could gather from his colleagues at Chhattisgarh regarding profitability of dairy farming.

The company in which Kumar was employed previously had number of employees who were residents of Haryana, Punjab beside other states. In their home state family members of his colleagues in number of cases were involved in dairy business. Interacting with his colleagues

Kumar could form idea regarding profit they earned from dairy farming.

In course of interaction with his colleagues he also formed idea about techniques that were useful for successful dairy farming. Kumar purchased two cows and a female calf (heifer) from his own resources to start dairy farming following his return from Chhattisgarh.

With support of KVK, Arwal, in short period of time he registered success in dairy farming. Kumar came in contact with scientists and other personnel of KVK while his plan of beginning dairy farming was in nascent stage. From very beginning he had handholding support of KVK. In his endeavour KVK stood solidly behind Kumar. From initial two cows he was able to increase the number to 18 within few years. The average milk production in his dairy was to extent of 120 litres after he was able to increase number of cows. Happy with his success in dairy farming, everything was fine for Kumar.

However his growth in dairy farming was halted in 2018 as Foot and Mouth Disease (FMD), a serious livestock ailment claimed life of number of his cows. Milk output in dairy of Kumar dropped to eight litres from earlier 120 litres following loss of cows. Withstanding loss courageously, he re-established dairy subsequently.

He was extended required scientific and technical support by KVK in his effort to tide over the adverse situation. Kumar revived dairy farming once again investing whatever resource he had at his disposal. With 25 cows, milk output of his dairy at present is around 170 litres per day.

Kumar has established milk cooperative society bearing name "Hajipur Jhunathi Dugdh Utpadak Sahyog Samiti Ltd". Milk is supplied in Gaya town by Samiti after collection from local dairy farmers. Net earnings of Kumar is between Rs 4-4.5 lakh per annum from dairy farming. He is confident of ensuring more than 20% income growth by 2022 taking up allied activities related to dairy farming.

Kumar has already started cultivation of green fodder of high nutritional value in 3.5 bigha land. He has been growing Super Napier grass for feeding his cows. Kumar harvests nearly 200 kilograms of Super Napier grass daily. By providing green fodder, Kumar has successfully cut down daily expenditure on feed of each cow to extent of Rs 80-85.

Since green fodder is rich in nutritional content there is no need of providing protein, sugar and fibre separately to animals, as per Kumar. This has helped reduce his daily expenditure incurred on feed of animals. Proper utilization of cow dung has also helped Kumar reduce his



expenditure.

He has commissioned a biogas plant in which cow dung is used for generating biogas. Instead of liquid petroleum gas he now uses biogas for cooking. With nearly 24 tonne cow dung generated in dairy of Kumar annually, he is all set to start preparing vermicompost.

He has learnt technique of preparing vermicompost participating in a training programme organized at Bihar Veterinary College, Patna. KVK scientists also assisted Kumar in learning the technique.

He has already started cutting down use of urea in family farmland by ensuring greater use of cow dung as replacement. He plans to start organic farming of papaya in 10 katha land from current year utilizing cow dung generated in his dairy. Execution of future plan would enable him to achieve targeted income growth by next year, Kumar believes.

Name: Kumar Premchand

Age: 40 yrs

Venture: Integrated fish farming

Village: Madaripur

Panchayat: Tilauthu (West)

Block: Tilauthu

District: Rohtas

Educational qualification: Matriculate

Institution facilitating venture: Krishi

Vigyan Kendra (KVK), Rohtas



INTEGRATED FISH FARMING BRINGS FORTUNE FOR FARMER

Kumar Premchand was keen on exploring possibility of integrated fish farming irrespective of the fact he had no previous idea of fish farming. His interest in integrated fish farming generated as he came to know this could be an ideal option for increasing his income. Premchand who started integrated fish farming in year 2015 has been able to augment his income substantially. Involved in farming of conventional crops, he earlier used to grow mainly paddy, wheat, onion and moong. Following completion of a training course from Industrial Training Institute (ITI) after matriculation, Premchand tried his luck in business. However after brief period he decided to take up agriculture as livelihood. It was in 2014 he started farming of conventional crops in agricultural land holding of his family. Premchand was successful in cultivation of conventional crops. In acknowledgement of his progressive outlook, he received Kissan Shree award in past. Subsequently with intention of diversifying he decided to start fish farming in family pond spread over one bigha land. After Premchand started fish farming, some agriculture department field workers suggested him that fish farming could be more return

oriented if he could go for integrated farming. Despite his willingness to begin integrated fish farming, he was unable to make much headway in this direction in absence of required scientific and technical knowledge.

Premchand, who had been in contact with scientists and other personnel of KVK, Rohtas shared with them his plan of starting integrated fish farming. He informed scientists about his limitations that proved hurdle in beginning fish farming.

Premchand was provided a HD card by KVK authorities consisting detail information related to integrated fish farming, taking note of his problems. HD card helped him immensely in gaining required knowledge of integrated fish farming.

Premchand having handholding support of KVK since early days was also briefed about finer points of integrated fish farming by KVK scientists. With scientific and technical assistance of KVK, in 2015 he started integrated farming of Rohu, Catla and Pangasius fishes in family pond.

Premchand was able to register encouraging income in first year. His gross income was little above Rs one lakh in first year. Gross earning of



Premchand was almost double of expenditure he had to incur on integrated fish farming.

He created five more ponds in subsequent year (2015-16) in approximately 1.5 bigha of land allocated to him under government scheme for soil conservation. At present he has total 11 ponds spread over four bigha of land.

With all necessary support from KVK, Premchand has successfully expanded fish farming activity. With production of 28 tonne fish in 2019, his net income was around Rs 15 lakh alone from culture of pangasius fishes. Motivated by success of Premchand many farmers in and around Tilouthu block have started culture of Pangasius fishes.

Fish culture particularly culture of pangasius fish has become highly popular in Rohtas district in recent years. Fish farming is practiced even by farmers having relatively small land holdings. So far Premchand is concerned, his success in fish farming did not stop him from diversifying further.

He has also started quail and poultry farming following his participation in training programme at Central Avian Research Institute, Bareilly.



Having started quail farming with 200 birds in 2016, at present he has around 70000 birds.

Income of Premchand from quail farming has increased to Rs six lakh per annum at present

from Rs 10000 per annum in past. He has also set up a hatchery where he produces quail, duck and kadaknath chicks.

Premchand had produced 2,25,000 quail and 7,500 kadaknath chicks in his hatchery last year. At present he is among major suppliers of quail chicks and adult birds in state. Premchand introduced farming of kadaknath poultry breed in 2017, after participating in a training programme organized by KVK. Premchand has also established a layer poultry farm where production of eggs is likely to start soon. Integrated approach in farming has helped him increase his income substantially. His gross income is between Rs 15 lakhs to Rs 20 lakh per annum at present.

Based on his experience, Premchand intends to prepare a model plan related to integrated farming that could be taken up for implementation at relatively

low investment in small land holdings. He aims at preparing the plan ensuring high return for farmers in consultation with KVK scientists.

Name: Swarn Sandhya Bharati

Age: 44 yrs

Venture: Mushroom farming

Village: Khankitta

Panchayat: Khankitta

Block: Sabour

District: Bhagalpur

Educational qualification: Intermediate

Institution facilitating venture: Krishi

Vigyan Kendra (KVK), Sabour

MUSHROOM FARMING HELPS WOMAN OVERCOME FI- NANCIAL PROBLEMS

It was for her grit and determination Swarn Sandhya Bharati could overcome odds of life. Primarily a home maker, she has succeeded in creating mark for herself as successful mushroom grower. Bharati needs no introduction in Sabour



area where she resides. In her village as well as adjoining villages she is well known as major mushroom producer.

The KVK, Sabour had been partner in success of Bharati. The handholding support of KVK significantly contributed in her success. Married in a family that depended on meager agricultural resources for livelihood, life was difficult for Bharati in past.

Her husband earlier used to grow wheat, maize and masoor in his two bigha agricultural land besides worked as daily wage labourer. His cumulative income was not sufficient to meet family requirements.

Augmenting income for ensuring proper educational opportunities for her two sons besides for fulfilling other family requirements had been major priority for Bharati in past. She started assisting her husband in farming for augmenting farm income. Efforts of Bharati however failed to increase farm income to desired extent. Subsequently after her husband migrated to Punjab for earning livelihood, she took entire responsibility of farming on her shoulder.

Later Bharati was selected coordinator of Khankitta Middle School education committee under Bihar Education Project. Her elder son used to study in same school. The nominal

amount she used to get in lieu of service rendered by her as coordinator of school education committee provided her slight relief. Things however continued to remain difficult for her in financial front as cumulative income of family from different sources was less than Rs 4000 per month. Till 2012, Bharati served as coordinator of education committee. Financial position of her family became bad to worse following discontinuation of the amount she used receive serving as coordinator of school education committee. Around this time Bharati came in contact with KVK scientist Anita Kumari who had been to her village for motivating as well as imparting training of mushroom farming to females of her village. In fact, this was beginning of her association with KVK.

With guidance and support of KVK scientists, Bharati gradually succeeded in rewriting fate. The concerned scientists whom she met in her village advised her to start farming and processing of mushroom after she told her about her problem.

Motivated by KVK personnel Bharati participated in a training programme organized by the institution. She was subsequently selected for participation in skill development training on mushroom farming organized at Bihar Agricultural University (BAU), under aegis of

Bihar Skill Development Mission (BSDM).

Bharati started small scale mushroom farming following participation in BSDM training programme. She was provided one kilogram mushroom seed by KVK apart from scientific and technical needed for beginning farming. Bharati also started preparing pickles and other edible items by processing her produce.

She had earlier received training of processing horticultural produce at KVK. Things started looking up for Bharati after she started farming and processing of mushroom. She could register net income of Rs 5000 in 2018 by growing mushroom in a room of her house. Same year Bharati received Abhinav Kissan Purskar at BAU Kissan Mela for value addition of her produce and also for undertaking mushroom farming successfully.

Earlier she had received prize for her mango processed products at mango diversity show organized in university. Having increased volume of mushroom farming sizably in due course, she also started preparing value added products of mushroom.

The value-added products of mushroom like Bari, Pappad, Achar and Morabba prepared by Bharati are high in demand. At present she grows mushroom in more than 2000 bags. The varieties grown by Bharati include Oyster, Button and

Milky varieties of mushroom.

Though initially she had to face problem in selling her produce however with assistance of KVK she was able to overcome the problem. In recent years Bharati has successfully expanded customer base for selling her produce. Her cumulative net income from mushroom farming, cultivation of crops and sell of value-added products is more than Rs four lakh per annum.

Bharati role model for many has popularized mushroom farming in her area. She has motivated number of women in her village as well as adjoining villages to take up mushroom farming. Bharati extends support to women interested in mushroom farming by arranging materials required for farming.

She also imparts training to women interested in mushroom farming. Such women who have received training from Bharati in number of cases have been registered by her under Agricultural Technology Management Agency (ATMA) in two separate groups namely “Bharati Mahila Khadya Suraksha Samuh” and “Shanker Mushroom Utpadan”.

As resource person she also imparts training on mushroom farming to participants in training programme organized by different institutions. Bharati intends to establish spawn lab in future for developing mushroom farming further.



Name: Sandip Kumar

Age: 33 Yrs

Venture: Goat farming

Village: Mojahidpur

Panchayat: Fatehpur

Block: Amarpur

District: Banka

Educational qualification: Graduate

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Banka

GOAT FARMING PROMISES BET- TER FUTURE FOR YOUTH IN DIFFICULT TIME

To have viable self-employment opportunity was something Sandip Kumar desired earnestly. Bachelor in computer networking, he was employed in software solution company at Delhi

before pandemic started badly effecting normal life of people in country.

Kumar used to get salary of Rs 24000 per month. However, he was not comfortable working in the company because of his job profile. Kumar had started examining various options of self-employment even before country was hit by pandemic in March 2020.

He wanted to earn livelihood through self-employment staying at home in his native village. With outbreak of pandemic, it became a compulsion for him to find out suitable option of self-employment in his village. Kumar who had returned home slightly before start of pandemic decided to quit his job as he didn't want to return to Delhi.

Belonging to family having agricultural background he wanted to do something related to agriculture. Earlier his family used to grow conventional crops in their five bigha farmland. However, with passage of time cultivation of conventional crops was by and large discontinued by family of Kumar as continuing labour-intensive farming was proving difficult for family members.

At present mango orchard has been established in major portion of family farmland for convenience. In given situation, Kumar decided to take up goat farming for livelihood. In fact,



idea of goat farming struck him seeing video clips related to successful farming on YouTube. Kumar, who had a goat in his house, could assess profitability of goat farming taking into account money he could earn selling mature kids of goat. Having decided to take up goat farming as livelihood occupation he contacted scientists and experts of KVK, Banka to seek their advice.

The KVK personnel involved in promotion of dairy, poultry and goat farming in the area assured Kumar all required support. He was enrolled for participation in training programme organized at KVK on goat rearing. Participation in training programme helped Kumar learn techniques of scientific goat farming.

Subsequently with initial investment of Rs 15000 he purchased five female goats (Does) and a male goat (Buck) last year for starting goat farming. At present Kumar has total 30 goats including kids in his farm. He has successfully increased number of goats in his farm following package of practices recommended by KVK scientists.

In order to remain updated about package of practices, Kumar regularly participates in training programme organized by KVK in virtual mode for people involved in animal farming. He is member of What's App group created by Dharmendra Kumar animal scientists of KVK. The group has been created for helping farmers

in finding solution of their problems.

Kumar has effectively controlled diseases in goats, seeking solution of health-related problems of his goats from group members. In case of any health related problem of goats, he makes it a point to post details of the problem in group. The group includes people involved in goat farming apart from KVK scientists and experts. Kumar has successfully reduced mortality of goats by following vaccination cycle recommended by scientists.

Taking note goats remain healthy and gain weight in less time if their food intake is through grazing apart from stall feeding, he has developed grazing ground in a portion of his orchard,. He has also grown leguminous grass in a portion of his orchard from planting materials provided by KVK.

Kumar was provided required scientific and technical assistance by KVK scientists in developing grazing ground. The facility of grazing has helped him ensure speedy growth of goats. Kumar observed the growth of his goats was relatively slow when they depended mainly on stall feeding for food intake.

Though he also used to provide concentrated feed to his goats in course of stall feeding however they failed to gain weight in desired extent. Kumar successfully reduced his expenditure

on feed of goats adopting mixed system of stall feeding and grazing. The encouraging result of mixed system has led Kumar decide about extending area of grazing ground in future.

He intends to increase area of grazing ground up to one bigha. Grass yield of Kumar is 15 kilogram /Katha on an average. Kumar plans to extend area of grazing ground also taking into consideration his stock of goats will increase by next year. Kumar is hopeful by end of March next year he will have 60 mature goats in his farm.

He expects goat farming will fetch him net income of more than Rs 1.5 lakh next year. Further, Kumar is hopeful of ensuring monthly income between Rs 30000 to Rs 40000 from his venture by end of next year. Satisfied with prospects of goat farming, he has decided to take up large scale farming in future.

An aspirational district, in Banka goat farming has become popular in recent years. Youths of district in number of cases have taken to goat farming as livelihood occupation encouraged by KVK. More than 25 goat farms having 15to 20 goats have come up in district of late. Many of these goat farms are located in remote areas.



Name: Gaurav Kumar

Age: 26 Yrs

Venture: Nursery & Framing

Village: Lailak

Panchayat:

Block: Sabour

District: Bhagalpur

Educational qualification: Graduate

Institution facilitating venture: Krishi Vig-

yan Kendra (KVK), Sabour

SKILL ACQUISITION HELPS IN DIVERSIFYING GOAL OF LIFE

Gaurav Kumar looks forward to securing government job alike majority youths of his age. He is keen on taking up government job primarily to avoid uncertainties of professional life. Kumar aims at qualifying competitive examination held for recruitment of school teachers.

For the purpose he has done course of Bachelor of Education after graduating in social science. Though Kumar has set goal of bagging job of school teacher however he is also keen on excelling in field of agriculture. Belonging to a

family having agrarian background he has knack for agriculture. In fact Kumar developed interest in agriculture in course of assisting his father in farm activities. His knack for agriculture has led him diversify goal of his life. Kumar has established nursery and also taken up cultivation of papaya and marigold to expand family farm activities. He wants to develop his nursery and also start large scale cultivation of papaya and marigold before he is able to secure job of school teacher.

Kumar is being extended all required support in his endeavour by KVK, Sabour. The opportunity of skill development in gardening provided him by KVK helped Kumar immensely in establishing nursery. The KVK support also helped him significantly in successful farming of papaya and marigold. Kumar was enrolled for gardener training programme organized at KVK in 2018. He could learn techniques of grafting, layering, budding and advanced techniques of plant propagation apart from methods of establishing nursery, participating in training programme. Most of the members in his family pursuing agriculture are primarily involved in cultivation of paddy, wheat and maize. However Kumar started exploring possibility of establishing nursery after receiving training of gardening. His family cultivates conventional crops in their 15

bigha farmland and also in additional land taken on lease. Family of Kumar has five bigha land in Mohanpur Siyagarh village of Gouradih block in Bhagalpur district located at a short distance from their native village. The said land holding of family had been lying unutilized as sizeable portion of the holding remains submerged during rainy season. While exploring possibility of establishing nursery Kumar decided to utilize portion of the land holding having no problem of water logging for the purpose. He initiated process of establishing nursery in more than acre land in 2019 under guidance of KVK scientists.

Kumar has grown 10000 mango plant seedlings of Biju variety for using them as root stocks in grafting. He has plan of preparing 50000 grafted mango plants in near future. Kumar mastered techniques of grafting and budding in course of training. He intends to prepare grafted plants of 10 to 15 mango varieties in near future.

He has also taken up grafting of lemon and guava trees for preparing plants. Kumar has been growing seedlings from mahogany seeds to ensure variety in his nursery. The KVK support has been crucial for him in establishing his nursery.

Though Kumar is yet to retrieve the money he had spent on establishing his nursery however he is confident in days ahead he would get

encouraging return from his venture. So far, he has spent approximately Rs six lakh for establishing his nursery. By selling mango, lemon, guava and mahogany plants Kumar has been able to recover Rs 50000 out of the total amount he had spent on establishment of nursery. Kumar sells mango plants at price of Rs 100 per plant, lemon plants at Rs 30 to Rs 50 per plant, guava at Rs 50 to Rs 60 per plant and mahogany at Rs 10 to Rs 20 per plant. Kumar was provided all required assistance by KVK scientists for introducing marigold farming. The result of marigold farming proved to be highly encouraging for Kumar in first year despite low market demand of flowers because of pandemic. He was able to sell his produce in local market at satisfactory profit margin. Compared to expenditure of Rs 5000 incurred by him in cultivation of marigold he was able to register Rs 20000 gross return selling his produce. Kumar has also started papaya cultivation. In 10 Katha land he has planted 200 papaya plants. Kumar is hopeful papaya cultivation would fetch him good return in near future. He is keen on pursuing agriculture, his diversified goal of life, more vigorously in future while continuing his efforts for securing government job.



Name: Satyendra Kumar

Age: 41 yrs

Venture: Crop diversification

Village: Chanduli

Panchayat: Pipraura

Block: Madanpur

District: Aurangabad

Educational qualification: Matriculate

Institution facilitating venture: Krishi

Vigyan Kendra (KVK), Aurangabad

CROP DIVERSIFICATION PROVES BOON FOR FARMER

In case of Satyendra Kumar his tale of success could sound like rags to riches story. Dependent on menial work for sustenance in past, he has been able to make it big in farming. A man who started farming taking 2.5 bigha land on lease is at present involved in cultivation of diverse crops in approximately 200- acre land taken on lease.

The extent of income growth Kumar has been able to ensure through agriculture after small beginning, speaks volume about his grit and determination to excel. He has established himself firmly in field of agriculture by dint of

labour and foresightedness besides support of KVK.

In fact, handholding by KVK helped Kumar significantly in his success. His family primarily dependent on agriculture for sustenance owns one- acre agricultural land. Income from cultivation of conventional crops in one acre land proved grossly insufficient for his family in fulfilling basic requirements.

Kumar had to discontinue study after matriculation due to financial problems. He went to Mumbai and subsequently to Delhi for earning livelihood after circumstances forced

him to discontinue study. However during his stay at Delhi and Mumbai Kumar was not satisfied doing menial work.

Taking into consideration money he had been earning staying outside was hardly sufficient to fulfill his requirements, he seriously started contemplating about earning livelihood staying at his native place. After few years stay outside, he finally returned to his village in 2001.

In course of exploring livelihood opportunities in his village Kumar felt farming could be best option for him. He however was of the view crop diversification was essential to increase farm

income. Kumar wanted to introduce cultivation of unconventional crops.

His father however was against making any change in conventional crop cycle he had been following since long time. Pooling in his resources Kumar along with a friend took 2.5 bigha land on lease for tomato farming.

He had been in touch with KVK authorities and other personnel since he decided to take up farming as livelihood occupation. Assisted by KVK scientists who provided him required scientific and technical knowhow he started tomato farming in agricultural land they had taken on lease.

The result of tomato cultivation proved highly encouraging for Kumar. He and his friend were able to register total net income of Rs 35000 growing tomatoes. They subsequently decided to diversify farming taking into consideration high profit they could earn growing tomatoes.

They took up farming of bottle gourd, sponge gourd, onion, cucumber and ladyfinger besides other vegetables grown in summer season. Kumar however had to incur loss in farming of vegetables due to unfavourable weather condition. Things became difficult for him following loss. Kumar was once again forced to migrate to metropolitan city for earning livelihood. He however was not comfortable staying outside. After gap of few

years in 2007 he again returned to his village.

Kumar took 1.5-acre land on lease for resuming farming on his return to his village. He contacted KVK scientists to seek their advice on cultivation of any unconventional crop that could ensure good profit for him. In light of his talk with them he cultivated Rajendra Sonia, a turmeric variety. Rajendra Sonia dwarf variety turmeric has yield potential of more than 400 quintal per hectare. Kumar who took up farming of turmeric under guidance of KVK scientists was able to reap good harvest. His net income was more than Rs 50000 from turmeric cultivation.

Kumar was faced with problem once again, as owner of the land he had taken on lease refused to extend lease after expiry of lease period of one year. After remaining idle for sizably long period he took 15 bigha land on lease in 2010 for farming.

Kumar cultivated brinjal and capsicum this time. He however was unable to get expected return from cultivation of brinjal and capsicum. Because of late cultivation, crop prospect was marred to a great extent. Subsequently in 2012 Kumar started papaya cultivation with horticulture department and KVK support.

KVK intervention helped Kumar in registering attractive income from papaya cultivation. Intervention of KVK helped him registering

gross income of Rs 5700000 against production cost of Rs 1200000. Kumar was able to record net profit of Rs 4500000 from papaya cultivation. He never looked back again since he introduced papaya cultivation. Following successful papaya cultivation, Kumar took nearly 60-acre additional land on lease for cultivating white pumpkin and drumstick. Always in favour of growing unconventional crop, he also initiated cultivation of carom seeds.

Highly satisfied with his net income from cultivation of white pumpkin, drumstick and carom seed, Kumar took 50 acres more land on lease to increase his area under cultivation. He has introduced guava farming in additional land. At present Kumar is primarily involved in farming of guava and drumstick.

His total drumstick produce is around 600 tonnes during season. Kumar supplies drumstick in markets at Kolkata and Patna. He has planted 32000 guava trees. Kumar expects 10- kilogram fruit yield from each tree after trees become mature.

He admits his income growth so far has been more than his expectation. Kumar is hopeful successful cultivation of guava will considerably increase his annual net income. He looks forward to introducing cultivation of jackfruit in future.



Name: Anil Kumar

Age: 34 Yrs

Venture: Mushroom spawn production

Village: Bhagat Tola

Panchayat: Mathurapur

Block: Khagaria

District: Khagaria

Educational qualification: Graduate

Institution facilitating venture: Krishi Vignyan Kendra (KVK), Khagaria

MUSHROOM SPAWN PRODUCTION FACILITATES INCOME GROWTH

Ensuring proper income growth has been always matter of concern for Anil Kumar since he started farming for livelihood. However his worries concerning generation of adequate income for sustenance were over to a great extent after he started producing mushroom spawns.

The venture of mushroom spawn production es-

tablished by Kumar more than a year ago helped him significantly in attaining financial stability in life. Forced by circumstances he had taken up agriculture as livelihood occupation. Kumar however has no remorse at present of being compelled to take up farming in past for survival. The economic self-sufficiency attained by him after establishment of his mushroom spawn production venture has made him believe that since destiny had something better in store for him, he was forced to select agriculture as livelihood occupation.

Kumar, who earlier worked as Rojgar Sewak on temporary basis in rural employment guarantee scheme (MNREGA), lost his job in 2012. After losing his job he started farming as he had no other option for survival. He took to growing conventional crops in total five bigha land, taking one bigha agricultural land on lease in addition to his four bigha land.

Kumar primarily took up cultivation of sugarcane. He also used to grow wheat, maize and soyabean. Since his income from cultivation of conventional crops was not sufficient enough for meeting family expenses, he was looking for options of diversifying farming.

However he was unable to find out any suitable option for the purpose. Associated with KVK for long time, Kumar subsequently established

venture of mushroom spawn production through institutional support received from KVK.

Handholding by scientists and other personnel of KVK had significantly helped him in past in addressing problems related to farming of conventional crops. The KVK support also proved crucial for him in starting venture of mushroom spawn production.

Kumar had been suggested by KVK personnel to explore possibility of mushroom spawn production when they came to know that he was looking for suitable option that could augment his income. Taking note popularity of mushroom farming in Khagaria and other adjoining districts, the scientists suggested him to start mushroom spawn production.

After properly assessing gap between demand and availability of mushroom spawn it was in November 2019 Kumar established lab for mushroom spawn production with technical assistance of KVK. He had opportunity of participating in five day training programme on mushroom farming organized by KVK, prior to starting his new venture.

Kumar not much aware about package of practices related to cultivation of mushroom was benefitted participating in the training programme. Participation in the training also helped him in learning technicalities of mushroom spawn pro-

duction.

Kumar had to incur expenditure of nearly rupee five lakh in setting up spawn production lab. His lab having machines like auto clave hood and laminar flow has capacity of producing more than three quintal spawn per month. Though general slowdown in 2020 because of pandemic had reduced demand of spawn however on an average monthly net income of Kumar was Rs 20000 during the year from production of mushroom spawn.

His net income from spawn production has been comparatively better in months of current year. Kumar looks forward to increased income from his venture in days ahead.

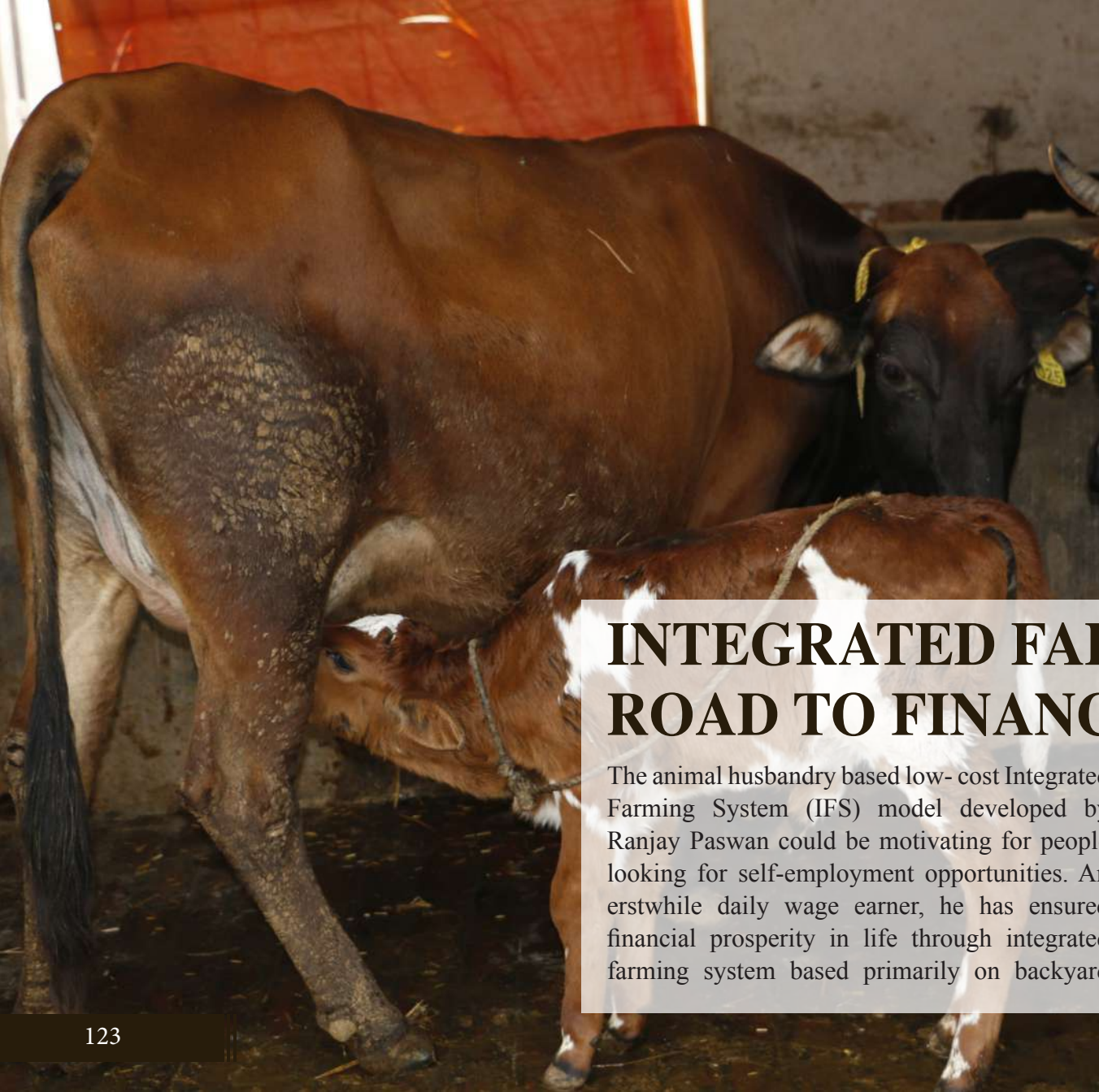
The KVK had ensured his linkage as spawn producer with number of mushroom growers, there is no dearth of demand for spawn produced in his lab. Mushroom growers of Raghunathpur village in Begusarai district apart from growers residing at different places in Khagaria district are among people who purchase spawn produced in his lab. Kumar currently involved in production of spawn of oyster variety of mushroom intends to take up production of spawn of button variety in future. Having started experimental farming of mushroom last year, he intends to start mushroom production for commercial purpose from current year.

Kumar has constructed two rooms in his plot measuring three Katha for mushroom farming. Under experimental farming he was able to grow nearly one quintal oyster mushroom last year. Major portion of his produce was used for domestic consumption. However to assess profitability of mushroom cultivation Kumar sold a portion of his produce.

He decided to start commercial farming of mushroom encouraged by his net earnings from sell of a portion of his produce. Kumar continues to grow conventional crops. On an average he produces nearly 200 quintals sugarcane by undertaking cultivation of the crop in one bigha land.

By selling his produce in a nearby sugar mill, Kumar is able to register annual net income of more than Rs 1.50 lakh from sugarcane cultivation. His net income from cultivation of maize, wheat and soyabean is more than Rs 50000 per annum.

Kumar is seriously contemplating to replace maize by another crop taking into account low income from maize cultivation. He is satisfied with his overall income from agriculture. Kumar is hopeful he would be able to further diversify agricultural activities in days ahead.



Name: Ranjan Paswan

Age: 39 Yrs

Venture: Animal husbandry based low-cost integrated farming

Village: Parari

Panchayat: Bhikari Ghat

Block: Alauali

District: Khagaria

Educational qualification: Middle level school education

Institution facilitating venture: Krishi Vigyan Kendra (KVK), Khagaria

INTEGRATED FARMING SYSTEM ROAD TO FINANCIAL PROSPERITY

The animal husbandry based low-cost Integrated Farming System (IFS) model developed by Ranjay Paswan could be motivating for people looking for self-employment opportunities. An erstwhile daily wage earner, he has ensured financial prosperity in life through integrated farming system based primarily on backyard

poultry.

Life had been difficult for Paswan in past. With no agricultural land holding, he had to migrate for earning livelihood after his father sole bread earner of family became bed ridden due to paralysis. The responsibility of sustaining his family came on Paswan after his father was incapacitated.

He worked as daily wage earner in metropolitan cities for more than five years. However, earning of Paswan was hardly sufficient to fulfil his family requirements. Ultimately in 2016 he returned to his native village aiming to do something staying at home.

While at home he had an opportunity to participate in Kissan Choupal organized in his village by Bihar Agricultural University (BAU). Kissan Choupal is a flagship extension programme of BAU. Paswan interacted with scientists and other personnel of KVK in course of participation in Kissan Choupal.

A veterinary doctor present in Kissan Choupal asked him to visit KVK when he solicited his suggestion regarding livelihood opportunities that he could explore. Subsequent visit of Paswan to KVK for seeking guidance from scientists and other personnel marked beginning of his association with KVK.

In fact, handholding by KVK helped him immensely in developing animal husbandry based IFS model that paved way of financial prosperity for him. Having four Katha land in backyard of his house, he was suggested by KVK scientists to take up poultry farming in vacant land in backyard.

Paswan received training of poultry farming participating in a training programme organized

at KVK. He was provided some chicks of Vanraja breed chicken and quail by KVK for starting backyard poultry. To begin with, Paswan purchased 50 more Vanraja chicks in 2016 at cost of Rs 1500 from Bihar Veterinary College located at Patna.

He had to face minor setback initially due to loss of some chicks. Total 40 chicks out of the total that survived were sold by Paswan after they attained weight of three kilogram. His net income was nearly Rs 25000 from sell of chickens.

Paswan took up farming of 200 Vanraja chicks subsequently encouraged by his first-time profit. His net income was approximately Rs 100000 from sell of eggs and chicken meat. Paswan was able to register high income primarily due to the fact farming of Vanraja breed involves low expenditure. For rearing the chicks, he mostly provided them grass feed.

By developing facility of vegetable farming in upper portion of poultry shed, Paswan augmented his income and also ensured protection of chicks from raptors. He grows mainly bitter gourd among vegetables. Since 2019 Paswan has taken up farming of Kadaknath chicken breed.

He purchased 100 chicks at cost of Rs 9000 for starting Kadaknath farming. His return from farming of Kadaknath was quite encouraging due to low cost of farming and high rate of meat.

In rearing the chicks till they became mature and gained desired weight, Paswan had to incur expenditure of approximately Rs 90 per chick including cost of feed. Compared to investment on rearing a chick, his on an average net income was Rs 500 from a grown-up chick.

Overall profit earning of Paswan was between Rs 70000 to Rs 80000 in first year from Kadaknath farming. He registered the profit earning selling egg and chicken meat. At present Paswan is also engaged in quail farming apart from farming of Kadaknath.

In year 2020 he started quail farming procuring 1000 quail chicks at rate of Rs 15 per chick from Bihar Veterinary College, Patna. Net income of Paswan was Rs 10000 by selling quail chicks on maturity. He established a hatchery following improvement in his financial condition.

Paswan continuing to receive institutional support from KVK has been provided 100 chicks of Sonali breed of late. Sonali chicks a cross breed of Rhode Island Red cocks and Fayoumi hens were provided to him for trial farming. Taking into account his high income from activities related to breed upgradation of goats, Paswan has recently purchased a male African Boer goat at cost of Rs 35000 for breeding purpose.

Earlier in 2017 he had purchased a male goat of Sirohi breed at cost of Rs 20000 for breed

upgradation. Paswan recorded net income of Rs 50000 per annum in the period between 2017-21 from breed upgradation activities. He used to charge Rs 200 in lieu of use of his male goat for breeding.

He looks forward to use his male African Boer goat for breed upgradation in near future. Under integrated farming system Paswan has also established a small dairy. At present he has two cows. The low-cost animal husbandry based IFS developed by Paswan has proved to be financially rewarding. Farmers from state as well as out of state often visit his place to see his low-cost model.

In fact, he has set an example how best integrated farming system could be developed with limited resources. Paswan for whom meeting ends proved difficult earlier earns more than Rs 25000 per month through integrated farming. He intends to start project related to preparation of poultry feed in near future.

Paswan has been provided subsidy of Rs 10 lakh for the project under government scheme with condition he would be required to provide employment to ten migrant labourers who returned home during pandemic. His success has motivated number of farmers in his area to take up integrated farming.



LIST OF CONTRIBUTOR'S

Sl No.	Name	Designation	Institute
1.	Dr. Vinod Kumar	Sr. Scientist & Head	KVK, Araria
2.	Dr. Anita Kumari	Sr. Scientist & Head	KVK, Arwal
3.	Dr. Binay Kumar Mandal	Sr. Scientist & Head	KVK, Aurangabad
4.	Dr. Brajendu Kumar	Sr. Scientist & Head	KVK, Banka
5.	Dr. Arbind Kumar Sinha	Sr. Scientist & Head	KVK, Bhagalpur
6.	Dr. S. B. Singh	Chief Scientist & Head	KVK, Amas, Gaya
7.	Er. Manoj Kumar Roy	Sr. Scientist & Head	KVK, Manpur, Gaya
8.	Dr. Muneshwar Prasad	Sr. Scientist & Head	KVK, Jehanabad
9.	Dr. Kumari Sharda	Sr. Scientist & Head	KVK, Katihar
10.	Dr. Bipul Kumar Mandal	Sr. Scientist & Head	KVK, Khagaria
11.	Dr. Rajiv Singh	Sr. Scientist & Head	KVK, Kishanganj
12.	Dr. Shambhu Ray	Sr. Scientist & Head	KVK, Lakhisarai
13.	Dr. Surendra Chaurasiya	Sr. Scientist & Head	KVK, Madhepura
14.	Mr. Mukesh Kumar	In-charge SS & Head	KVK, Munger
15.	Dr. Seema Kumari	Sr. Scientist & Head	KVK, Nalanda
16.	Dr. Reeta Singh	Sr. Scientist & Head	KVK, Patna
17.	Dr. K. M. Singh	Sr. Scientist & Head	KVK, Purnea
18.	Dr. Shobha Rani	Sr. Scientist & Head	KVK, Rohtas
19.	Dr. Nityanand	Sr. Scientist & Head	KVK, Saharsa
20.	Er. Pramod Kr. Choudhary	Sr. Scientist & Head	KVK, Sheikhpura
21.	Dr. Manoj Kumar	Sr. Scientist & Head	KVK, Supaul
22.	Dr. Ranjan Kr. Singh	Sr. Scientist & Head	KVK, Nawada

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