



**Acharya Narendra Deva University of
Agriculture and Technology, Kumarganj,
Ayodhya-224229**



Best Practices

Best Practice 1:

Title of the practice: “Socio-economic upliftment of Tharu community”

Objectives of the practice

- To provide sustainable livelihood opportunities to the people of “Tharu” community (Scheduled Tribes) for their socio-economic upliftment
- To enhance the livelihood of the community through backyard poultry, goat husbandry and fish farming
- To provide agricultural and other resources free of cost to the community
- To establish the computer lab to educate the children of the community
- To organize skill training to women on different aspects

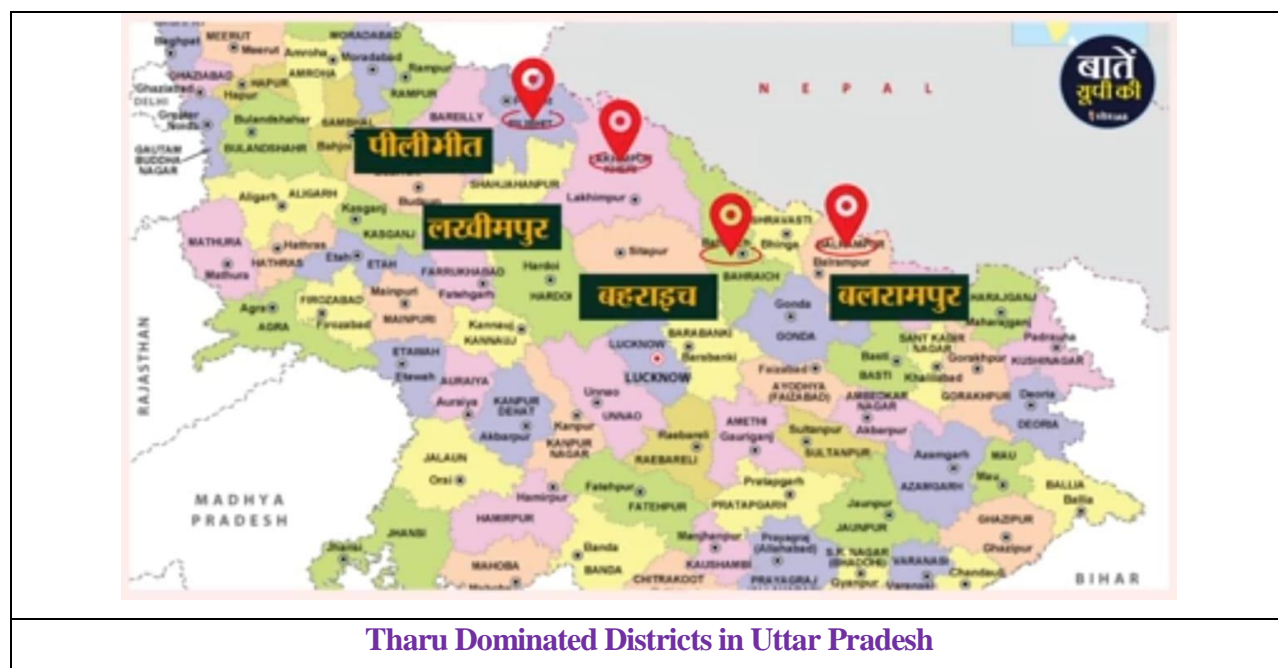
The context

The university is practicing on “Socioeconomic upliftment of Tharu community” since 2018, but after visit by Hon’ble Chancellor in Tharu dominated villages in Balrampur district, Uttar Pradesh and inspiration from Hon’ble Chancellor, the university is now practicing more efficiently by utilizing more budget and covering wide area of Tharu dominated villages in Balrampur and Bahraich districts of Uttar Pradesh.

The Tharu tribe is an ethnic group of indigenous people living in the Terai plain on the Indo-Nepal border of Uttar Pradesh (UP). Tharu as a tribe closely connected with Land (*Jamin*), Water (*Jaal*) and Forest (*Jungle*) for their habitat and livelihood. The total population of Tharu in UP is 105,291(53,687 males and 51,604 females) and mostly engaged in agriculture, raise cattle, hunt, fish, and collect forest products. The university conducted the Participatory Rural Appraisal (PRA) surveys to assess the socioeconomic condition of Tharu community in Balrampur and Bahraich districts covered under university jurisdiction and observations revealed

that the socio-economic status of the Tharu community in both areas was characterized by significant deprivation.

Most of the people of the community were unaware about technical agricultural and animal husbandry practices. In order to ensure the sustainable livelihood of the Tharu community, it is imperative to equip them with technical expertise in agricultural and animal husbandry operations, as well as offer them with financial assistance. Following the identification of a significant need, the Narendra 97 rice variety has been disseminated to farmers through a front line demonstration. A tribal support initiative has been implemented with financial support from the Indian Council of Agricultural Research (ICAR) to enhance the socio-economic status of the Tharu community. Tharu communities have embraced the practice of fishing subsequent to the introduction of the Frontline demonstration of fish seed and fingerlings. The adoption of animal husbandry and fishing, along with agricultural practices, has led to an enhancement in the livelihood of the Tharu population. The university has also supported them by educating their children for basic as well as higher education including support of computer labs for imparting the basic computer knowledge as well as internet facilities to interact regionally and globally.



The practice

The university conducted the survey in Tharu dominated areas in Balrampur and Bahraich districts and after identifying the gaps, demonstration with multi disciplinary approaches on oil seed (147), pulses (149), cereals (4036), vegetables (11), poultry (3), fisheries (44) dairy (48) and goatery (12) has been carried out since inception of TSP in 2016-17 as per their requirements and needs of the area. The university has also organized 63 agronomical practices training with 2140 beneficiaries and 60 Vocational Trainings with 1362 beneficiaries. The training and demonstration has direct transformed the farmers into income-generation activities in different enterprises.



Training Organized on “Backyard Poultry Rearing” and Free of Cost Distribution of Kadaknath Poultry Chicks and Goats to the People of Tharu Community in Balrampur District (U.P.)

Through its Krishi Vigyan Kendra, Pachpedwa, district Balrampur (U.P.), the university distributed free Kadaknath poultries, Barbari, and Sirohi goats to Tharu people in Balrampur. Each selected family received goats (five females and one male) and poultry (twenty-five), as well as a kit containing a feeder and waterer, basic feed additives, five kilograms of poultry feed,

and a training manual. Four hundred goats and fifty thousand backyard poultry have been distributed.



Goshthi Organized And Tharu Farmer's Field Visit By The University Scientists In Pachpedwa, District Balrampur (U.P.) on 18 February, 2020



Training Organized and Vegetable Mini Kits Distributed to 132 Women Tharu Farmers by the University Scientists in Pachpedwa, District Balrampur (U.P.) on 12 May, 2021

Fish Fingerlings Distributed to Tharu Farmers by the University Scientists in Pachpedwa, District Balrampur (U.P.) on 21 Sept., 2021

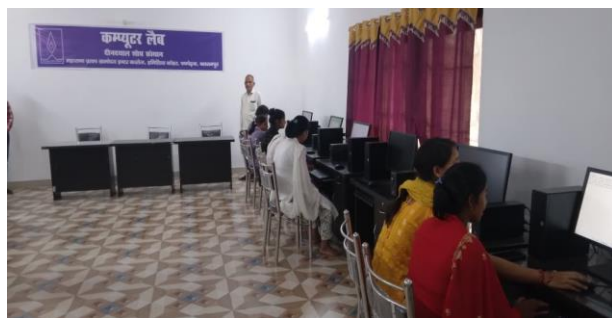
Through field demonstrations, trainings, goshties, and awareness programs, the university is helping the Tharu population in the areas where they are the majority in the Uttar Pradesh districts of Balrampur and Bahraich. On the 18th of February, 2020, the Tharu community in the hamlet of Pachpedwa, District Balrampur, participated in a goshthi focused on the cultivation of high-quality grains and the Front-Line Demonstration (FLD) of an improved variety of wheat. From September 14-

18, 2021, a five-day training session focused on mushroom production techniques, and from May 9-13, 2022, women from the Tharu community in the village of Pachpedwa, District Balrampur, received training in the cultivation of medicinal and aromatic plants. Free fish fingerlings and training sessions on fish farming were provided to the Tharu people on September 21, 2021. Seeds, PVC pipes, a battery-powered Napsek Sprayer, a steel tank for storing grain, the university's own "NDR-2065" paddy seed variety, fruit and vegetable saplings, and fish fingerlings are all being distributed for free by the university. A Five Days Rural Youth Training was organized at a Village "Vishanapur", Block Mihipurva, Bahraich (U.P.) During 22-26 June, 2019 in which training of tailoring was given to the Tharu women for their socioeconomic upliftment. Dr. Seema Jaggi, ADG (HRD), ICAR, as an Expert counseled the Tharu women and distributed the free of cost Sewing Machine to them on 9 June, 2022. Under DBT Kisan Biotech Hub Project (2019-2022), 153 demonstrations on different agronomical practices (90 on paddy, 16 on wheat, 13 on Mustered and 34 on Marigold crop) and 15th trainings were conducted to boost the productivity of crops.







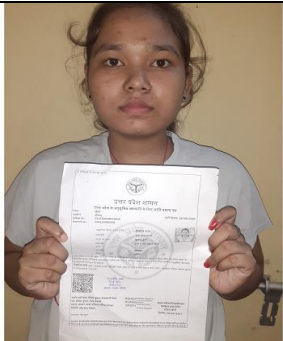
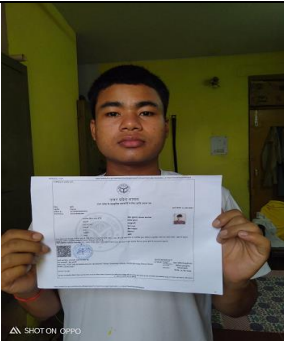


Free of Cost Distribution of Seed, Fertilizer, Napsek Sprayer and Plant Saplings to Tharu Farmers by the University Scientists in Pachpedwa, District Balrampur (U.P.)

During the Rural rapid appraisal (RRA) Survey conducted in September 2020 to understand the relationship between the socioeconomic status of the Tharu, it was identified that the Tharu Community lacks the computer knowledge necessary to disseminate the latest development via the internet and other communication systems. The problem was brought to the attention of the Hon'ble Chancellor by the Hon'ble Vice chancellor, and it was resolved by the Hon'ble Chancellor/Governor of Uttar Pradesh through the establishment by financial assistance of Rs 800,000 only and inauguration of a computer lab with 15 computers on March 18, 2021 at Maharana Pratap Gramoday Inter College, Emiliya Koder, Pachperawa, Balarampur. Since the establishment of the lab, 360 students have benefited, and 60 students are presently enrolled. The university always creates awareness among students in the Tharu dominated areas to take admission in our university and other higher institutions.



Computer Lab Established in Tharu Dominated Village Area at Imaliya Coder, District Balrampur (U.P.)

Total 8 Tharu students have taken admission in our university. A Ph.D. student (Ms Akanksha Yadav, Id. No. C-13013/22) of our university is also conducting research on “Prevalence of anaemia among antenatal women in tribal, urban and rural area of U.P.”.

 <p>Scanned with CamScanner</p> <p>Shiv Kumar Rana, Id No.A-9199/16/20/22</p>	 <p>Scanned with CamScanner</p> <p>Ashutosh Kumar, ID. No. A-</p>	 <p>Scanned with CamScanner</p> <p>Pramod singh, id. No- A-10806/19</p>	 <p>Scanned with CamScanner</p> <p>Dinesh Rana , Id No- A-10777/19</p>
 <p>Scanned with CamScanner</p> <p>Jasmine Rana, ID. No.- A-12576/22</p>	 <p>Scanned with CamScanner</p> <p>Manoj Kumar, Id. No. A-17719/21</p>	 <p>Scanned with CamScanner</p> <p>Vipin Kumar Rana, ID. No.- A-11440/20</p>	 <p>Scanned with CamScanner</p> <p>Karam Singh Rana, ID. No- A-10790/19</p>
<p align="center">Students of Tharu Community Registered in the University</p> <p align="center">(Student's Photograph with Caste Certificate)</p>			

Socioeconomic condition of the community plays a significant role in the physical, social and mental health of individuals, education, enterprise etc. In this regard, the university contributed significantly in enhancing the livelihood and socioeconomic upliftment of Tharu community by providing technical knowledge and need based input through field demonstrations, trainings, goshties, and awareness programmes regarding technical agricultural, animal husbandry, fisheries and other practices, and free of cost distribution of improved varieties of seeds, fertilizers, Napsel sprayer, PVC pipes, goats, backyard poultrys and kits. The evidence of success was reported as Tharu community initially engaged in traditional farming practices and they have improved their household income by adopting improved agronomical scientific practices. The implementation of diversified agricultural practices led to an increase in the average annual income derived from

agriculture, amounting to INR 1,12,007. This income was comprised of INR 57,537 from crop production and INR 54,470 from livestock & fish production. The gross return of livestock production was found to be higher than that of agriculture. In a nutshell, it was found that livestock production was more beneficial than crop production. A sustained endeavor led to approximately 35% of the Tharu farmers being involved in commercial-scale agricultural practices, while the remaining 65% were engaged in subsistence farming. The farmers regularly contact to the expert for problem diagnosis through WhatsApp or ask for diagnostic visits to their farms in order to gain scientific solution of their problems.

The university has made a significant contribution to the socioeconomic upliftment and sustainable livelihood of Tharu people through the distribution of free sewing machines to Tharu women during rural youth training. This has resulted in direct employment for the women, as they are now performing tailoring and selling beautiful dresses that they have made themselves as an entrepreneur. This initiative by the university has made a noteworthy contribution to the socioeconomic advancement and long-term sustenance of the Tharu community.



Dr. Seema Jaggi, ADG (HRD), ICAR, Counselling and Distributing Sewing Machine to Schedule Caste Women on 9 June, 2022.



Five Days Rural Youth Training at a Village "Vishanapur", Block Mihipurva, Bahraich (U.P.) During 22-26 June, 2019



Training Organized and Visit of Bee Keeping Units of Tharu Farmers by the University Scientists in Pachpedwa, District Balrampur (U.P.) on 8 June, 2022



Demonstration of Sprinkling of Pesticide/ Fertilizer Through Drone on Farmer's Field

Through the initiatives undertaken by the university, the children belonging to the Tharu community are being provided with educational opportunities to acquire theoretical and practical knowledge in the field of computer science. In addition, they are acquiring up-to-date knowledge on agricultural technology, including weather forecasting, in order to ensure that their family may reap the benefits of computer labs. Since the establishment of the computer lab, a total of 360 students have received training of computer skill and presently, 60 students have been enrolled. Tharu farmers are also getting information regarding scientific animal husbandry and agricultural practices from their wards. Technical support has been given to women Self-Help Group in the districts Balrampur and Bahraich, Uttar Pradesh and they are working efficiently to enhance their livelihood and socioeconomic upliftment.

The university has made the following Women Self Help Group (WSHG) and Farmer Producer Organization (FPO) for upliftment of Tharu Community:

Puja Women Self Help Group

Sl. No.	Name	Husband/ Father's name	Designation
1	Sashi Kala	Mohan	Chairman
2	Pawitra Devi	Prem Sagar	Secretary
3	Sumita	Umesh	Accountant
4	Devi	Rajendra	Member

5	Poonam	Satyadev	Member
6	Indrakala	Nanbabu	Member
7	Chameli	Ramabhilakh	Member
8	Sunita	Ajay	Member
9	Shyam Kali	Chinnu	Member
10	Meena	Vipin	Member
11	Rukmani	Brijendra	Member

Ekla Women Self Help Group

Sl. No.	Name	Husband/ Father's name	Designation
1	Manna	Brijmohan	Chairman
2	Manjani	Vijay Sagar	Secretory
3	Rinju	Rakesh	Accountant
4	Anjani	Anil	Member
5	Brijman	Chinku	Member
6	Ramrati	Budhai	Member
7	Mohila	Sadhu	Member
8	Nayka	Pitai	Member
9	Kamla	Prem	Member
10	Nanka	Punwasi	Member
11	Kaushalya	Prem Kumar	Member
12	Ananta	Bharat	Member

Shanti Women Self Help Group

Sl. No.	Name	Husband/ Father's name	Designation
1	Ilaichi	Shatrughan	Chairman
2	Nirma	Vijay Kumar	Secretory
3	Gayan Maya	Lallu	Accountant
4	Gulaba	Shiv Sagar	Member
5	Swaliya Begam	Shamiullaha	Member
6	Sujita	Dinesh	Member
7	Gudaiya	Pawan	Member
8	Ranjana	Hariom	Member
9	Imirta	Chandrabali	Member
10	Geeta Devi	Bhup naryan	Member
11	Laxmi Devi	Ganeshman	Member

Suraj Women Self Help Group

Sl. No.	Name	Husband/ Father's name	Designation
1	Santoshi Chaudhary	Dadhees Chaudhary	Chairman
2	Vidya Devi	Saroj	Secretory
3	Laxmi Devi	Maneesh	Accountant
4	Ringla	Ambika	Member
5	Ganga wati	Ram shanker	Member
6	Arti	Rjman	Member
7	Sumitra Devi	Rameshwar	Member
8	Pramila	Raj Govind	Member

9	Akalmati	Chinku	Member
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FPO

Name of FPO	Name of CEO
Balrampur Spices Farmers Producers Company Ltd, Kohargaddi, Pachperwa, Balrampur	Gaurav Kumar Tiwari

The socioeconomic upliftment of the Tharu Community was pursued through the establishment of Women Self-Help Groups (WSHG), namely Puja Women Self-Help Group, Ekla Women Self-Help Group, Shanti Women Self-Help Group, Suraj Women Self-Help Group, and the Farmer Producer Organization (FPO) known as "Balrampur Spices Farmers Producers Company Ltd., Kohargaddi, Pachperwa, Balrampur".





Activities of Women Self Help Group of Village “Vishanapur”, Mihipurva, Bahraich (U.P.)

Best Practice 2:

Title of the practice: “Crop Residue Management”

Objectives of the practice

- Promotion of in-situ management of crop residue to prevent environmental degradation and loss of soil nutrients and minerals
- Diversified use of crop residue for various purposes such as power generation, packing material, paper/board/panel industry and compost production
- To use the crop residues in sustainable crop production and nutrient sources for next crop
- To promote the organic and natural farming
- To maintain the soil biodiversity including soil flora and fauna

The context

The practice of crop residue management (CRM) is being carried out by the university since 2018. Hon’ble Chancellor directed to Vice Chancellor to look into the problem of environmental pollution occurring due to crop residue burning. The university took immediate action to solve the problem. The direction and inspiration of Hon’ble Chancellor has led to speed up and extended the practice in eastern Uttar Pradesh.

Large quantities of residues from a wide variety of crops are left behind both on and off the farm after harvest. According to the Ministry of New and Renewable Energy, about 500 million metric tons per year of crop residues are produced,. Uttar Pradesh produces 60 metric tons (Mt) of crop leftovers annually, followed by Punjab with 51 Mt and Maharashtra with 46 Mt. The majority of crop leftovers (352 Mt) come from cereals, followed by fibers (66 Mt), oilseeds (29 Mt), pulses (13 Mt), and sugarcane (12 Mt). Cereal crops (rice, wheat, maize, millets) account for 70% of the crop leftovers, with the rice crop accounting for 34% of the total. Twelve million metric tons, or two percent of India's total crop waste, come from sugarcane top and leaves.

Crop residues are an important source of organic matter and nutrients for soil. By properly managing crop residues, farmers can improve soil health and fertility, which can lead to better crop yields, reduced need for chemical fertilizers, and long-term sustainability of their land. There are several options for management of crop residues: mulching, incorporation in the soil and surface retention etc. Crop residues are primarily used as bedding material for animals, livestock feed, soil mulching, bio-gas generation, bio-manure/compost, thatching for rural

homes, mushroom cultivation, biomass energy production, fuel for domestic and industrial use, etc. Crop residues can help to prevent soil erosion by acting as a protective layer on the soil surface. This is particularly important in areas with steep slopes or heavy rainfall, where erosion can be a major problem. By reducing soil erosion, farmers can preserve the quality and productivity of their land. Nevertheless, a significant proportion of agricultural residue is incinerated "on-site" principally with the intention of clearing the field in preparation for the subsequent cropping season. The issue of "on-farm" burning of crop residues has become increasingly prominent in recent years due to several factors. These include the limited time available between crop harvesting and sowing of the next crop, the additional labor costs associated with proper disposal of the residues, the lack of demand for crop residues such as paddy straw as livestock fodder, a shortage of human labor, and the prevalence of mechanized crop harvesting methods. According to the currently available figures, the primary practice of burning crop leftovers is prevalent in four states, specifically Haryana, Punjab, Uttar Pradesh, and West Bengal. The combustion of crop leftovers has a detrimental impact on soil biodiversity. Crop residue burning is well recognized as a significant contributor to the exacerbation of air pollution, hence leading to the manifestation of various respiratory ailments such as asthma, coughing, and other related respiratory complications. The presence of elevated levels of air pollution has a detrimental impact on visibility. The penalty (Rs.2500 to 15000) is imposed by the administration if someone is caught burning crop residues in their fields, which leads to unnecessary economic losses to the farmers.

Challenges for management of crop residue:

- Huge volume of crop residue
- Collection & Storage.
- Time window between harvesting and sowing of two(next)crops.
- Utilization of crop residue.
- Cost-effective mechanization, awareness and availability of appropriate machinery.

The practice

Keeping in view of increase in pollution due to stubble burning, the university has taken an initiative to aware the farmers about the disadvantages on the human as well as soil health. The university started the crop residue management (CRM) practices since 2018 with the

budgetary allocation of Rs. 90.45 lac, 152.7 lac, 245.95 lac and 166.46 lac in 2018-19, 2019-20 and 2021-22, respectively. The university procured CRM farm machineries such as happy seeder (14), reversible MB plough (12), paddy straw chopper/shredder/mulcher (16), zero till drill (15), rotavator (9) and tractor (5) during 2018-2022. New Holland Company is supporting the university by providing two tractors and accessories free of cost to create awareness among the farmers for disposal of crop residues. The university is helping to the farmers for crop residue management through custom hiring centres and also took initiative to develop dwarf varieties of paddy to reduce the burden of crop residues.



Five Days Training Programme on Crop Residue Management Organized by the University at KVK Sohna, Sidharthnagar (U.P.)



Five Days Training Programme on Crop Residue Management Organized by the University at KVK Kotwa, Azamgarh (U.P.)



Village Level Awareness Programme on Crop Residue Management Organized by the University at KVK Sohna, Sidharthnagar (U.P.)



Awareness Programme on Mobilization of Students (Assay, Painting and Quiz) Under Crop Residue Management Organized by the University at Chhatrapati Shivaji Smarak Inter College, Sidharthnagar (U.P.)



Crop Residue Management Using Biodecomposer by the University at KVK Kotwa, Azamgarh (U.P.)



Awareness Programme on Crop Residue Management Organized by the University at KVK Sohna, Sidharthnagar (U.P.), Published in News Paper

Demonstrations at farmer's field were conducted by the university KVKs in which 9, 18, 29, 27 and 32 villages were covered, and 150, 862, 887, 1055 and 1175 demonstrations were conducted in 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23, respectively. The university organized training programmes on CRM at school/college level in which 796, 4823, 3974, 4554 and 5378 students participated in 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23, respectively. The university organized live training programmes on CRM at block/district level in which 1340, 3438, 2541, 3425 and 4384 farmers actively participated in 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23, respectively. Awareness programmes on CRM have also been organized in 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23 in which 685, 4345, 6310, 7185 and 10294 farmers, respectively, participated in the programme.



Hands-on Training on Crop Residue Management by the University at Kotwa, Azamgarh (U.P.) During 29-30 November, 2021



Happy Seeder (Live Demonstration) by the University



Crop Residue Management Using Power Shredder-cum-Mulcher at the University Farms

A state level farmer's fair and Krishi Udyog Pradarshini on the theme of "Crop residue management" was organized in the university campus during December 7-8, 2018. This practice is being continued to dispose of the crop residues in proper manner and the university is creating awareness to the farmers through trainings and the school children are also being made aware about this practice so that they can spread this information to their family members.

The university is also practicing crop residue management by using biodecomposers. The recycling of crop residues has the great potential to return a considerable amount of plant nutrients to the soil. The crop residues are chopped and mixed in the field using this mechanized equipment which increases the organic matter and nutrients of the soil to increase its fertility by enhancing the nutrients availability to the crops. The university is utilizing residues of different crops as mulch on the surface of the soil to conserve the soil biodiversity and moisture content which reduces the water requirement of the crop. The university is also practicing and promoting utilization of crop residues for organic and natural farming and extending this practice to the

farmers for doubling the farmer's income and reducing the input costs in the form of chemical fertilizers as well as reducing the atmospheric pollution. The university is carrying out the CRM practice in eastern Uttar Pradesh through its 8 Krishi Vigyan Kendras (KVKs) and managed 150 ha, 862 ha, 887 ha, 1055 ha and 1175 ha land in 2018-19, 2019-20, 2020-21, 2021-22 and 2022-23, respectively.

Evidence of success

The university started the CRM practices in 2018 through its eight KVKs viz., Varanasi, Chandauli, Mahrajganj, Azamgarh-1, Jaunpur-1, Bahraih-1, Barabanki and Siddharthnagar. More than 15,000 farmers are using crop residue management technology with the support of KVKs, and taking benefits of farm machinery bank and custom hire services. Government of UP is also promoting crop residue management practices through centrally funded Farm Machinery Bank Scheme to the farmers.

With the efforts of the university the farmers become aware about benefits of CRM practices which resulted into a rapid decline in the crop residue burning incidences. In CRM districts, total 1836, 495, 324, 601 and 28 crop residue burning incidences have been observed in 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22, respectively. Due to implementation of this practice, 43.62%, 72.69%, 47.53% and 90.08% crop residue burning control has been observed in 2018-19, 2019-20, 2020-21 and 2021-22, respectively.

By adopting and disseminating this practice to the farmers, the university has contributed in the overall reduction of atmospheric pollution occurring due to burning of crop residue in the field and conservation of soil biodiversity. This practice minimized the labour inputs for collecting and burning these materials on the crop field, protected the soil surface, restricted the water loss from the soil by evaporation and helped in preventing raindrop erosion. By adopting this practice, the university is generating employment and imparting in doubling the farmers income. As a result of significant contribution of the university in the area of "Crop Residue Management", the unit of the university: KVK, Kotwa, Azamgarh (U.P.) conferred Appreciation/Award from the ICAR in 2020.

Front line demonstration of crop residue management on farmer's field were conducted on 4129 hectare land during 20-22. Keeping in view of this valuable practice, 90% farmers have adopted and further recognized as reduction of atmospheric pollution occurring due to burning of

crop residue in the field and conservation of soil biodiversity. Research work conducted by the M.Sc. (Ag.) and PhD. students of the university on in-situ crop residue management found that the application of 30 kg per hectare additional nitrogen at the time of preparation of land resulted into enhanced decomposition process.



**Crop Grown in Crop Residue Managed
Field at Kotwa, Azamgarh (U.P.)**



**University Scientists Visited the Farmer's
Crop Residue Managed in Azamgarh (U.P.)**

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Crop Residues Used for Mulching

This also helped in maintaining the soil and plant relationship. It brought the soil pH at required level. It helped in managing plant nutrient for optimum use and water conservation. There was increase in greater microbial biomass and activity near soil surface which acted as reservoir for nutrient needed in crop production and increased structural stability for infiltration. Soil carbon sequestering contributed benefits and played significant role in mitigating global climate change. Happy seeder used by the university also reduced the time period between crop harvesting and sowing of the next crop. By adopting this practice the university is generating employment and imparting in doubling the farmers income.

Success Stories/Case Studies -1

Income Enhancement of Mr. Ram Prakash through Crop Residue Management

Mr. Ram Prakash Yadav son of Sri Daleep Yadav Mobile No. 9452083305 is resident of village Arajibagmati, block Rani Ki Sarai, district Azamgarh (U.P.). He owns 8.35 ha. of land and 6 pure breed of milch animals. He has six members in his family and all are totally dependent on his earnings.

Wheat is an important *rabi* season crop in eastern Uttar Pradesh. Earlier, Mr. Yadav used to sow his wheat through broadcasting method and mixed with the help of rotavator or cultivator. However, he always worried about burning of crop residue in field and think about a machine which can be utilize to cut the stubbles into a small pieces and mix in soil to improve the soil status. With all these thoughts, he came to Krishi Vigyan Kendra, Kotwa, Azamgarh and met with the scientists. He discussed all his problems in detail regarding burning of decomposable organic product of crop and higher cost involved for its management before wheat sowing. Scientists advised him about the benefits of crop residue management and their various options available under CRM and that can be applied according to the situation and present need. Among them happy seeder machine can be used immediately for sowing of wheat after paddy harvest while straw cutter cum spreader, mulcher & chopper is used to cut the stubbles in small pieces in whole field which facilitate smooth functioning of machines.

After getting technical information about happy seeder, Mr. Yadav learnt about the calibration of happy seeder in the field. He got fully satisfied that wheat sowing with happy seeder will certainly give him good output. He sown wheat in 9.0 acres area during 2019 with the help of happy seeder and reduced the cost up to half in comparison to conventional method of wheat sowing.



Success Stories/Case Studies -2:

Doubling Farmer's Income through Crop Residue Management

Mr. Devendra Rai S/o Sri Ram Chandra Rai is a resident of village Sirwan, block Thekma, district Azamgarh (U.P.). Earlier, Mr. Rai used to sow the wheat through broadcasting method with the help of rotavator or cultivator, however, he always worried about burning of crop residues in field and started to think about a machine which can be utilized to cut the stubbles into small pieces and mix in soil to improve the status of soil fertility. With all these thoughts, he came to Krishi Vigyan Kendra, Kotwa, Azamgarh and met with the scientists. Mr. Rai discussed thoroughly about the crop residue burning and how to manage residues in field itself. Scientists were advised him to use happy seeder machine for sowing of wheat and motivate him for zero burning of crop residues. During 2018-19 in wheat crop, he experienced many benefits of happy seeder sown crop in comparison to conventional method *viz.*, increase of soil fertility, less infestation of weeds, reduced number of ploughing, less irrigation requirement, more number of tillers, reduction in fertilizers load and significant increase in yield with reduced cost of cultivation.



Mr. Rai got district level award for highest productivity of wheat (74.3q/ha.) by the Hon'ble District Magistrate, Azamgarh on occasion of "Chaudhari Charan Singh Jayanti" on 23rd December, 2019 and National level award at Farm Machinery Expo at Chandigarh on 02 September 2021 by the Hon'ble MoS, MoA&FW, Govt. of India for his good services towards popularization of crop residue management technology among farmers on large scale.





फसल अवशेष प्रबंधन के बारे में जागरूक हुए किसान
 सोहना, सिद्धार्थनगर। कृषि विज्ञान केंद्र सोहना के परिसर अंतर्गत घरगंवा गांव में शुक्रवार को इन सीट फसल अवशेष प्रबंधन योजना के तहत गांव स्तरीय जागरूकता कार्यक्रम का आयोजन किया गया। कृषि वैज्ञानिकों ने किसानों को फसल अवशेष जलने से होने वाले हानियों के बारे में जागरूक किया। इससे किसान फसल अवशेष न जलाकर खेत में ही सड़ाए।

Success Stories/Case Studies -1

Income Enhancement of Mr. Ram Prakash through Crop Residue Management

Mr. Ram Prakash Yadav son of Sri Daleep Yadav Mobile No. 9452083305 is resident of village Arajibagmati, block Rani Ki Sarai, district Azamgarh (U.P.). He owns 8.35 ha. of land and 6 pure breed of milch animals. He has six members in his family and all are totally dependent on his earnings.

Wheat is an important *rabi* season crop in eastern Uttar Pradesh. Earlier, Mr. Yadav used to sow his wheat through broadcasting method and mixed with the help of rotavator or cultivator. However, he always worried about burning of crop residue in field and think about a machine which can be utilized to cut the stubbles into a small pieces and mix in soil to improve the soil status. With all these thoughts, he came to Krishi Vigyan Kendra, Kotwa, Azamgarh and met with the scientists. He discussed all his problems in detail regarding burning of decomposable organic product of crop and higher cost involved for its management before wheat sowing. Scientists advised him about the benefits of crop residue management and their various options available under CRM and that can be applied according to the situation and present need. Among them happy seeder machine can be used immediately for sowing of wheat after paddy harvest while straw cutter cum spreader, mulcher & chopper is used to cut the stubbles in small pieces in whole field which facilitate smooth functioning of machines.

After getting technical information about happy seeder, Mr. Yadav learnt about the calibration of happy seeder in the field. He got fully satisfied that wheat sowing with happy seeder will certainly give him good output. He sown wheat in 9.0 acres area during 2019 with the help of happy seeder and reduced the cost up to half in comparison to conventional method of wheat sowing.



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THE UNIVERSITY INITIATIVES IN CROP RESIDUE MANAGEMENT FOR SUSTAINABLE AGRICULTURE

Farmers of eastern Uttar Pradesh are dominantly practicing the Rice Wheat Cropping System (RWCS). Every year a large quantity of crop residues are generated. With the introduction of combine harvester, management of crop residue is a major challenge. Generally, crop residues are either used as animal fodder or burnt in the field by the farmers. The main reasons of problem in crop residues disposal are short time period between crop harvesting and sowing of the next crop, extra labour cost regarding its disposal and little demand of crop residues like paddy straw as a fodder for livestock.

The university is using crop residue management machineries which are equipped with additional devices to manage crop residues especially combine harvested paddy straw efficiently and also make convenient fields to wheat sowing in short time period. Happy Seeder, Turbo Happy Seeder, Mulcher, Straw Cutter cum Spreader, Reversible MB Plough, 55 HP Tractor, Zero Till Seed cum Ferti Drill, Rotavator are the second generation equipments efficiently are being used under crop residue management.

Crop residue management is presently being operated by the university in 25 district of eastern Uttar Pradesh. University started the crop residue management practice in 2018 with 3 KVKs viz., Azamgarh, Jaunpur and Varanasi and further, it extended to four more KVKs viz., Bahraich, Chandauli, Mahrajganj and Siddharthnagar during 2020-21. The journey of its initiation from 100 ha demonstration laid out at farmers field in Azamgarh district during 2018 is now horizontally spread around 48750 ha area in 2022-23. More than 15,000 farmers are using crop residue management technology with support of KVK, beneficiaries of farm machinery bank and custom hire services etc. Government of UP is also promoting crop residue management practices through centrally funded Farm Machinery Bank Scheme to the farmers.

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Success Stories/Case Studies -2:

Doubling Farmer's Income through Crop Residue Management

Mr. Devendra Rai S/o Sri Ram Chandra Rai is a resident of village Sirwan, block Thekma, district Azamgarh (U.P.). Earlier, Mr. Rai used to sow the wheat through broadcasting method with the help of rotavator or cultivator, however, he always worried about burning of crop residues in field and started to think about a machine which can be utilized to cut the stubbles into small pieces and mix in soil to improve the status of soil fertility. With all these thoughts, he came to Krishi Vigyan Kendra, Kotwa, Azamgarh and met with the scientists. Mr. Rai discussed thoroughly about the crop residue burning and how to manage residues in field itself. Scientists were advised him to use happy seeder machine for sowing of wheat and motivate him for zero burning of crop residues. During 2018-19 in wheat crop, he experienced many benefits of happy seeder sown crop in comparison to conventional method viz., increase of soil fertility, less infestation of weeds, reduced number of ploughing, less irrigation requirement, more number of tillers, reduction in fertilizers load and significant increase in yield with reduced cost of cultivation.

Mr. Rai got district level award for highest productivity of wheat (74.3q/ha.) by the Hon'ble District Magistrate, Azamgarh on occasion of "Chaudhari Charan Singh Jayanti" on 23rd December, 2019 and National level award at Farm Machinery Expo at Chandigarh on 02 September 2021 by the Hon'ble MoS, MoA&FW, Govt. of India for his good services towards popularization of crop residue management technology among farmers on large scale.



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Documents Regarding Crop Residue Management