RAWE and ELP of Students

RAWE Programme:

Students of 2018-2022 and 2019-2023 Batches have participated in the RAWE programme detail as given below. It was conducted in six nearby adopted villages of SAAS namely Ashurali, Darikrishnanagar, Laxmanpur, Jhaodari, Sahemalpur and Uttar Bhadura.

Course Code	**RAWE-AIA 701**
Course Name	**Rural Agriculture Work Experience & Agro Industrial Attachment (RAWE & AIA)**
Activities	a. General orientation and On campus training by different faculties
	b. Village attachment
	1. Orientation and Survey of Village
	2. Agronomical interventions
	3. Plant protection interventions
	4. Soil improvement interventions (soil sampling and testing)
	5. Fruit and vegetable production interventions
	6. Food processing and storage interventions
	7. Animal production interventions
	8. Extension and Transferof Technology activities
	c. Unit attachment in Univ. or college. KVK /Research station attachment
	d. Plant clinic
	e. Agro industrial attachment

	f. Project report preparation, presentation and evaluation

The detailed reports of RAWE programme for 2018-2022 Batch and 2019-23 Batch is given below:

RAWE Report of 2018-2022 Batch

The eight weeks Rural Agriculture Work Experience (RAWE) programme was conducted for the first time in July 2021. Due to Covid 19 restrictions and lockdown, the RAWE programme could not be conducted in physical mode from the University Campus. So, instead, an online approach was taken for coordinating the entire village attachment part of RAWE. In this approach, the students who hail from rural areas were directed to work in their own villages. Whereas students residing in urban areas were asked to select their nearest village for conducting all the different interventions. Since there are students from all over the state, as well as a few from other states a huge array of agroecological zones representing diverse crops, soil types, and weather conditions, were covered despite the limitations faced by the students and faculty in the execution of the village attachment part of the RAWE programme. Students learned to conduct surveys, data collection on household/field procedures, farmers' livelihood & income sources, soil/plant sample collection & analysis, fertilizer recommendation, identification of pests and diseases of different kharif crops as well as farmers' problems, and field intervention to address the issues faced by the farmers. This is followed by the preparation, submission, and presentation of reports for their evaluation. During this entire exercise, they are attached to the assigned faculty members who have expertise in different disciplines of agriculture including agronomy, horticulture, soil science, plant protection, food engineering, animal science, Agricultural Extension, etc. The faculty members were online every day on the MS Teams platform from 10 am to 1 pm and again from 2.30 pm to 4.30 pm, so that students could get in touch whenever they faced any doubts or difficulties during the survey and data collection or had any queries. RAWE aims at the capacity building of individual students so that he/she can identify the problems of the locality and respond to the farmers with possible solutions. The entire RAWE programme included orientation and basic

training (1 week); Village attachment (8 weeks); KVK/Research station attachment (5 weeks); Plant clinic (2 weeks); agro-industrial attachment (3 weeks); project report preparation, presentation, and evaluation of report (1 week).

Village Attachment

Basic Training and Village Attachment (2018-2022 Batch): Seven days' orientation from 01/08/2021 to 07/08/2021 was being carried out. In Village attachment (Duration 08/08/2021 to 09/09/2021)students were assigned to conducta village survey, to identify problems and constraints in the farming system and analyse the factors involved in the sustainability of the overall farming system in the village. The village allocation was done on the basis of proximity to the residential area of the studentsand the rural intervention programme was conducted under the supervision of faculty members from respective departments.

List of Faculties:

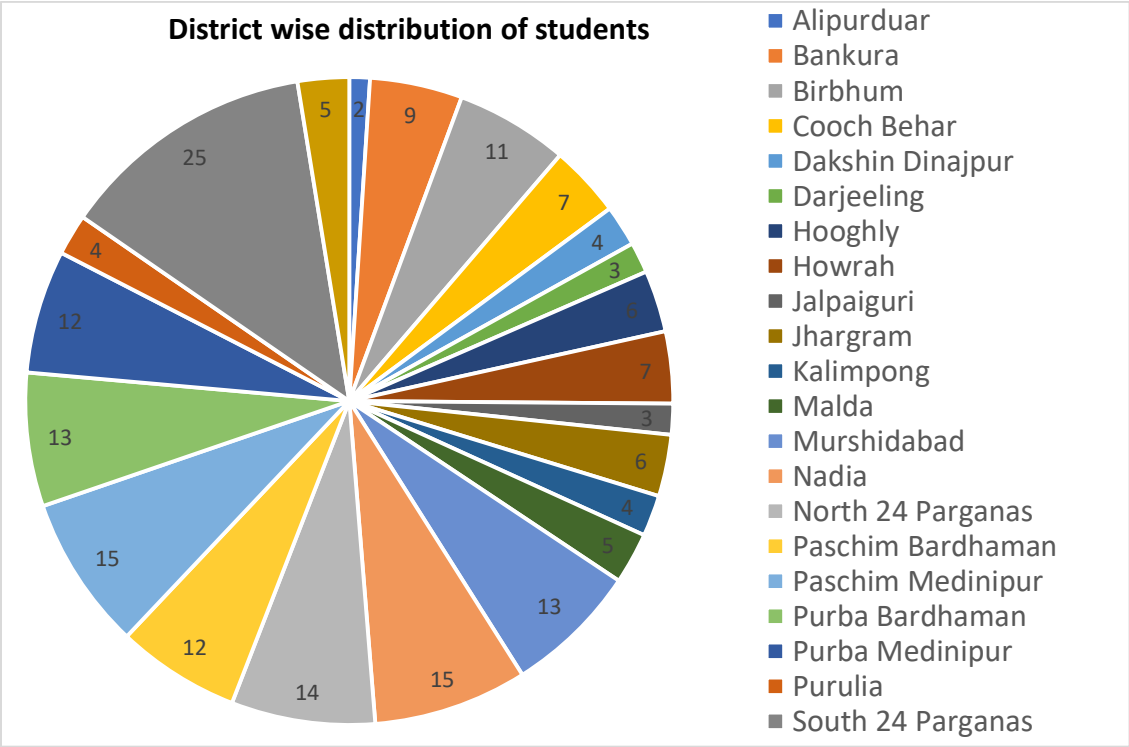
The following faculties were responsible for guiding the RAWE students in their respective interventions.

Intervention	Faculty
Orientation and survey of Village	Dr. Abhishek Ghosh
Agronomical intervention	Dr. Tanuj Kumar Mondal (**Programme Co-Ordinator)**
Plant Protection Intervention	Dr. Koushik Sen
Soil Improvement Intervention	Mr. Sourav Mullick
Fruits and Vegetable Production	Dr. Sarthak Bhattacharya
Food Processing and Storage Intervention	Miss Ishita Das
Animal Production Intervention	Dr. Agnishwar Jha Chakraborty
Extension and Transfer of Technology	Dr. Abhishek Ghosh
Description	**Faculty**
Orientation and survey of Village	Dr. Abhishek Ghosh
Agronomical intervention	Dr. Tanuj Kumar Mondal (**Programme Co-Ordinator)**
Plant Protection Intervention	Dr. Koushik Sen
Soil Improvement Intervention	Mr. Sourav Mullick
Fruits and Vegetable Production	Dr. Sarthak Bhattacharya
Food Processing and Storage Intervention	Miss Ishita Das
Animal Production Intervention	Dr. Agnishwar Jha Chakraborty
Extension and Transfer of Technology	Dr. Abhishek Ghosh

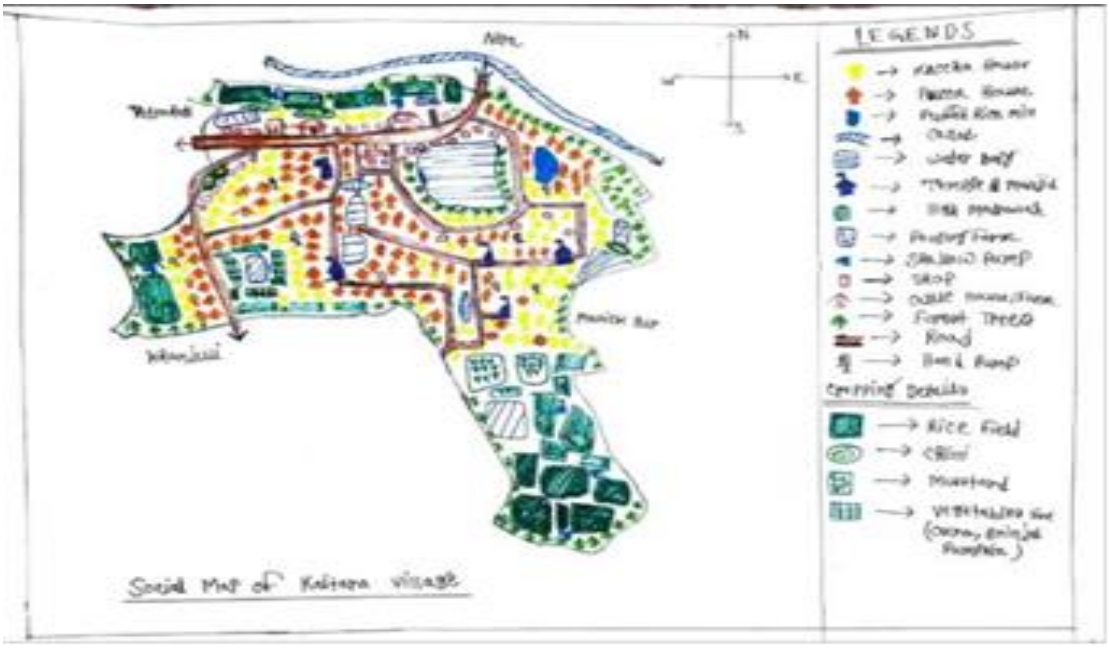
Students have performed several assignments namely orientation and survey of the village, agronomical intervention, soil improvement intervention, plant protection intervention, animal production intervention, fruits and vegetable intervention, food processing intervention, and storage, etc. Because of Covid restrictions transfer of technology

activities could not be conducted. However, the students studied ongoing extension and rural development programmes in their respective villages. They have successfully completed and submitted their project report. Their reports were evaluated by the internal and external evaluators.

District wise distribution of students:



Orientation and survey of Villages:



The data/information regarding household and socioeconomic status was collected by each student from 10 farmers randomly. The data were collected with the help of a pre-tested interview schedule constructed by the faculties of Agricultural Extension for generating the data with regard to individual farm entrepreneurs. In the case of collecting group information PRA tools and techniques have been utilized.

The study of farmers' experience had been studied within the village niche by incorporating the conceptual framework amalgamated with the methodological concepts of PRA. The methodology had been clearly defined as the methods and rules used for the collection of data/information. The intervention delineates the locale of research, pilot study of the particular area, sampling design, problem identification, and cause and effect relationship which was identified through the PRA exercise and interpreting the information as well. After getting the primary contact information from ADA and ATMA personnel the students visited their selected villages and gained the confidence of the villagers through the ice-breaking process ultimately, gained information on different aspects of agriculture as a whole, to the students. Standard group interview techniques and focus group discussions could not be used given the limitations imposed by the Covid protocols. Lastly, the students got all the information regarding their natural resources, human resources, topography, land use planning, livelihood pattern, cropping pattern of the villages along with the agriculture situation of the village.

The students were also involved in a survey besides PRA techniques and information/data obtained from those methods are appended below in the form of a report.

The following PRA tools were used to analyse the information collected from the villages.

- Social Map
- Hydrological map
- Enterprise Line etc

All the secondary data required for the preparation of RAWE reports were collected by the students from the respective ADA, ATMA, and BDO offices.

Agronomical Interventions




All the 7th-semester students went to their selected villages. Students have interacted with the local farmers and observed the problems related to three agronomic crops namely rice, maize, and sugarcane, jute and gave technical guidance to improve the crop yield to get maximum profit. All the students have submitted RAWE reports based on their observations along with possible solutions to overcome the problems.

Problems identified

- Delay in onset of monsoon
- Land inundation due to excess rainfall within a short period of time
- Lack of knowledge of agronomic management

Possible solutions

- Use of short-duration crop varieties
- Raising of rice seedlings for transplanting in a seedling factory
- Following good drainage practices
- Application of a balanced dosage of fertilizer
- Practicing Integrated Nutrient Management (INM) and Integrated Weed Management (IWM)Plant Protection Interventions.

Plant Protection Interventions

All the 7th-semester students went to different nearest villages from their homes. Students have interacted with the local farmers and observed the problems related to field and vegetable crops namely rice, maize, groundnut, chili, brinjal, bitter gourd, bottle gourd, and pumpkin, and gave technical advice to manage crop pests. All the students have submitted RAWE reports based on their observations along with possible solutions to overcome the problems.

Problems Identified for Insect Pests

- Infestation by yellow stem borer in rice.
- Infestation by fall armyworm in maize.
- Infestation by aphids, leaf miners, tobacco caterpillars, and thrips in groundnut.
- Infestation by thrips and mites in chili.
- Aphid and fruit fly infestation in cucurbitaceous vegetables.
- Infestation of the shoot and fruit borer in Brinjal.

Possible solutions

For yellow stem borer of rice

- Clipping the tips of seedlings before transplanting to reduce the carryover of eggs from the seedbed to the transplanted fields.
- Placement of trichocard (Trichogramma japonicum) if possible.

- Spraying of Cartap hydrochloride 50% SP @ 2 g/lit. of water.

For fall armyworm of maize

- Application of dry sand into the whorl of affected maize plants soon after observation of pest incidence in the field.
- Application of Sand + lime in a 9:1 ratio in whorls in the first thirty days of sowing.
- Spraying of biopesticide Bacillus thuringiensis var. kurstaki @ 2g/lit. of water.
- Spray Spinetoram 11.7 SC @ 1 ml/lit. or Chlorantraniliprol 18.5 SC @ 0.20ml/lit. or
- Thiamethoxam 12.6% + Lambda cyhalothrin 9.5% ZC @ 0.4 ml/lit. of water.

For pests of groundnut

- Deep ploughing in summer to expose white grubs, nematodes, and hibernating defoliators.
- Collection and destruction of egg masses and early instar larva of S. litura, RHC and Bihar hairy caterpillar.
- Installation of pheromone traps @ 5/ha for monitoring and trapping of S. litura and H.armigera.
- Use S. litura NPV @ 250 LE (6 x 109/LE)/ha or Bt @ 1 kg/ ha when a large number of egg masses and early instar larva are noticed.
- Use 5% neem seed kernel extract against S. litura, leaf miner on a need basis.
- Augment the release of Cheilomenes sexmaculata @ 1250/ha against Aphiscraccivora.
- Release of Bracon hebetor @ 5000/ha in 2 times at 7- 10 days intervals against leaf miners and defoliators.
- Application of Flubendiamide 20WG @ 60 g a.i./ha for S. litura, Imidacloprid 17.8SL@ 0.25 ml/lit. of water or Isocycloseram 9.2% W/W DC @ 1 ml/lit. of water for aphids and thrips.

For vegetable pests

- Intercropping of brinjal (2 rows) with coriander (one row) or fennel (1 row) for BSFB.
- Spraying of emamectin benzoate 5% SG @ 0.4 g/lit. or chlorantraniliprole18.5% SC@ 0.4 ml/lit. of water.

- For fruit flies, protein bait spot spray technique and male annihilation, and for aphids, application of systemic insecticides like Imidacloprid 17.8 SL or Cyantraniliprole10.26 OD or Fipronil 5 SC.
- For chilimites and thrips, apply Hexythiazox 5.45 EC or Fluxametamide 10 EC or Cyantraniliprole 80 g/L + Diafenthiuron 400 g/L – 480 SC at recommended doses.

Problems Identified for Diseases

- Rice brown spot disease
- Bacterial blight of rice
- Downy and powdery mildew of cucurbitaceous vegetables.
- Phomopsis blight of brinjal.

Possible solutions

For rice brown spot disease

- Clean cultivation and removal of crop residues and weeds
- Judicious use of nitrogenous fertilizer
- Resistant/Tolerant varieties- Khandagiri, Udaygiri, Lalitagiri, Badami, Bhoi, Gajapati, Mahanadi, Indravati, Savitree, Rambha, Kanchan.

For bacterial blight of rice

- Seed treatment with 0.1 g Streptocycline in one liter of water for 20 minutes or with 0.1g Copper Sulfate in one liter of water for 20 minutes or with 0.3 g Agrimycin-100in one liter of water for 20 minutes.
- Check irrigation scheduling and application of bleaching powder with irrigation water.
- Cultivation of resistant variety: Ajay, Asha, Biraj, CO-43, Gobind, Janaki, Radha, Suraj etc.

For Downy and powdery mildew of cucurbitaceous vegetables

- Clean cultivation. (Early sowing and destruction of wild cucurbitaceous host)
- Spraying Metalaxyl @2g/l and Hexaconazole @1 ml/l
- Avoid overdose of nitrogen because lush foliage and shade favor the disease.

For Phomopsis blight of brinjal

- Destruction of infected plant material
- Seeds from diseased plants should not be used for planting.
- Spraying with Bordeaux mixture (1%) effectively controls the disease in the field.
- Give hot water treatment to seeds

Soil Interventions

Under this component, the students studied the use of soil health cards for fertilizer schedules, Integrated Nutrient Management (INM) and its importance in soil quality improvement, the role and importance of micronutrients in crop production, soil salinity, alkalinity, and acidity and its reclamation. Natural Resource Management (NRM), the role of Bio-fertilizer in improving soil health, soil properties important for soil health, quality control in fertilizer, soil degradation, improvement of soil health for sustainable agriculture, vermicompost and its role in improving soil health, classification of green manures & role in improving soil health, Water management, Crop rotation. All the 7^{th}-semester students went to their selected villages. Students interacted with the local farmers and observed the problems related to soil and gave technical guidance to improve the soil status for better crop yield so as to get maximum profit. The entire intervention was carried out with consultation and under the guidance of the respective faculty. Lastly, all the students have submitted RAWE report based on their observations along with possible solutions to overcome the problems

Problems identified

- Soil Drainage
- Soil Salinity

- Soil Acidity
- Monocropping
- Overuse of chemical fertilizers
- Less use of organic manures
- Lack of knowledge of nutrient management.

Possible solutions

- Use of different land shaping models for better crop output
- Crop rotation
- Modern technologies in the application of fertilizers.
- Practicing Integrated Nutrient Management (INM)
- Use of proper dose of fertilizer.

Fruit and Vegetable Production Interventions

All of the 7th-semester students visited their selected villages. Students have interacted with local farmers and most commonly witnessed issues with two fruit guava and mango and two vegetables brinjal and okra crops. In order to increase crop yield and maximize profit, they provided technical advice. All the students have submitted RAWE reports based on their observations along with possible solutions to overcome the problems.

Problems identified

- Using conventional techniques of cultivating fruit and vegetable crops.
- Procurement of planting material (seeds, saplings, etc.) in fruit and vegetable crops from unauthentic sources.

- Lack of knowledge of nutrient management, weed management, insect-pests management and disease management.

Possible solutions

- Procurement of planting material from any genuine and reliable sources viz. SAUs, KVKs, Research Institutes, etc.
- Adopting special horticultural practices *viz*. bending of guava, mulching, etc.
- Practicing Integrated Nutrient Management (INM) and Integrated Pest and Disease Management (IPDM).
- To follow the standard spacing.

Food Processing and Storage Intervention

Students from the 7th semester visited food processing units located in their selected villages such as the Puffed rice mill, Bakery Unit, Rice Mill, etc. and interacted with the staff/people running the units. The problems faced by them for running the business were observed by the students and were suggested possible solutions to increase the revenue of their units. Regarding the storage interventions, the post-harvest treatment of grains and storage structure were observed by the students and suggested solutions for efficient storage.

Problems identified

- Use of traditional storage structure.
- Lack of proper spacing in processing unit.
- Inefficient waste disposal system.
- Inefficient packaging and storage environment.

Possible solutions

- Use of modern storage structures such as Silo, bins.
- Proper spacing should be maintained between different sections of the processing units.
- Proper disposal system should be provided.

- Use of high-quality packaging materials and a cool storage environment for finished products.

Animal Intervention


As part of the RAWE animal intervention, the most common livestock studied by the students were Cattle, Goats, and Poultry (mostly chicken). Students gained knowledge and understanding of raising animals, information about animal feed, various dairy products, green fodder, how to raise poultry, information about poultry feed, and market data regarding livestock. Each student in the RAWE curriculum selected a source farmer with whom they worked during the village attachment. The main issue in a majority of villages was the scarcity of livestock and the fact that most residents had no idea what breed their cows were.

Students took care of matters such as feed management, vaccine planning, and cleanliness concerns in both the cattle and poultry sheds. The residents of these villages were also aware of how crucial these aspects are from an economic standpoint.

During this intervention, some students were also able to visit locations, such as the VLDO headquarters, a cow farm, and a commercial poultry facility. During those visits, students also learned about the many government programmes that werebeing implemented and how a commercial animal farm unit operates.

Extension and Transfer of Technology Intervention

As part of the Extension and transfer of technology activities, the students collected information on ongoing agriculture and rural development programmes of the Central and State govt. from the respective ADA and ATMA offices. Based on this information they went to their selected villages and interviewed the beneficiaries regarding those ongoing programmes and recorded their responses. Due to Covid most of the social activities were suspended, so the students did not get to participate in the village social activities.

The transfer of technologyactivities was planned on the basis of problems identified by the students in their respective villages. The transfer of technology activitieswas based on the idea of creating awareness about modern crop management practices, providing information to the farmer's community as well as exploring new income opportunities for the rural community. Students conducted small-scale demonstrations under the guidance of the faculty members in places where direct engagement with the farming community, Farmer-producer Companies (FPC), Self Help Groups (SHG), or Cooperatives was possible.In other areas where such interaction and engagement were not possible, students prepared and distributed leaflets containing information on modern farm innovations, advisory regarding varietal selection, pest and disease control measures, seed treatment methods, information on vermicomposting, mushroom cultivation as well as the possible solutions of the most common problems faced by the farming community. The entire activity was conducted under the guidance of respective faculty members.

RAWE Report of 2019-2023 Batch

Eight Weeks Rural Agriculture Work Experience (RAWE) programme is conducted in nearby (in the vicinity of the university) adopted villages. Students are divided into sub-groups and are assigned a particular village to learn survey, data collection on household / field procedure, farmers' livelihood & income sources, soil / plant sample collection & analysis, preparation of soil health card, fertilizer recommendation, identification of farmers' problem and field intervention to address the issues faced by the farmers. This is followed by preparation, submission, and presentation of report for their evaluation. During this entire exercise they are attached to the assigned faculty members having expertise in different disciplines of agriculture including agronomy, horticulture, soil science, plant protection, food-engineering, animal science, Agricultural Extension etc. RAWE aims on the capacity building of individual student so that he/she can identify the problems of the locality and respond to the farmers with possible solutions. It includes: orientation and basic training (1 week); Village attachment (8 weeks); KVK/Research station attachment (5 weeks); Plant clinic (2 weeks); agro-industrial attachment (3 weeks); project report preparation, presentation and evaluation of report (1 week).

Village Attachment

Basic Training and Village Attachment: Seven days' orientation from 01/08/2022 to 07/08/2022 was being carried out for 2019-2023 Batch. In Rural Experience (Duration 08/08/2022 to 09/09/2022)students were assigned for village survey, identify problems and constraints in farming system and analyse the factors involved in the sustainability of overall farming system in the village. Six villages were allocated and 36/37 students were assigned in each village as given below for the rural intervention programme under supervision of faculty members.

List of villages

Sl. No.	Name of the village	No. of students
1	Ashurali	36
2	Darikrishnagar	36
3	Laxmanpur	36
4	Sahemalpur	37
5	Uttar Bhadura	37
6	Jhaodari	36

List of faculties:

The villages were selected considering the following:

Intervention	Faculty
Orientation and survey of Village	Dr Shraddha Bhattacharjee (**Programme Co-Ordinator)**
Agronomical intervention	Dr Tanuj Kumar Mondal
Plant Protection Intervention	Dr Koushik Sen
Soil Improvement Intervention	Mr Sourav Mullick
Fruits and Vegetable Production	Dr Sarthak Bhattacharya
Food Processing and Storage Intervention	Miss Sujata Karmakar/Dr Boris Huirem
Animal Production Intervention	Dr Agnishwar Jha Chakraborty
Extension and Transfer of Technology	Dr Shraddha Bhattacharjee

i. Significant number of progressive farmers.
ii. Opportunities for agricultural intervention and improvement.
iii. Existing profuse natural resources and crop diversity.
iv. Diversified demographic features.
v. Presence of farmers having entrepreneurial ventures.
vi. Near college campus for operational convenience.

Students have performed several assignments namely orientation and survey of village, agronomical intervention, soil improvement intervention, plant protection intervention, animal production intervention, fruits and vegetable intervention, food processing intervention and storage, etc.They were also involved in transfer of technology and farmers awareness cum demonstration programme. They have successfully completed and submitted their project report. Their reports were evaluated by the internal and external evaluators as done in previous batch.

Orientation and survey of Villages:

The data/information regarding house hold and Socio-economic status collected by the students from 10 farmers randomly. The data were collected with the help of pre-tested interview schedule constructed by the faculties of Agricultural Extension for generating the

data with regard to individual farm entrepreneur. In case of collecting group information PRA tools and technique have been utilized.

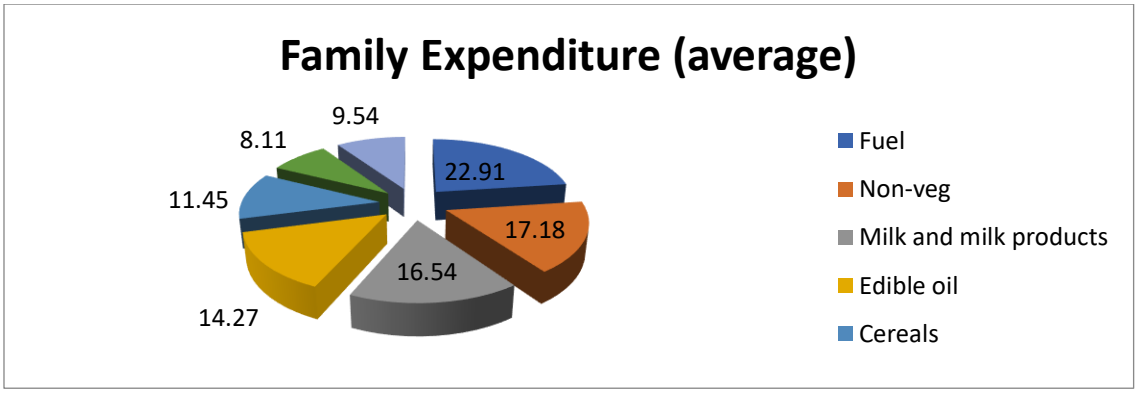
The study of the farmers experience had been studied within the village niche by incorporating the conceptual framework amalgamated with the methodological concepts of PRA. The methodology had been clearly defined as the methods and rules used for the collection of data/information. The intervention delineates the locale of research, pilot study of the particular area, sampling design, problem identification, cause and effect relationship which was identified through the PRA exercise and interpreting the information as well. After getting the confidence of the villagers through ice-breaking process ultimately, they shared the information on different aspects of agriculture as a whole, to the students. Group interview technique and the focus group discussion have also been used. Lastly the students got the all the information regarding their natural resources, human resources, topography, land use planning, livelihood pattern, cropping pattern of the villages along with the agriculture situation of the village.

The students were also involved in survey besides PRA techniques and information/data obtained from those methods are appended below in the form of a report.

Brief report

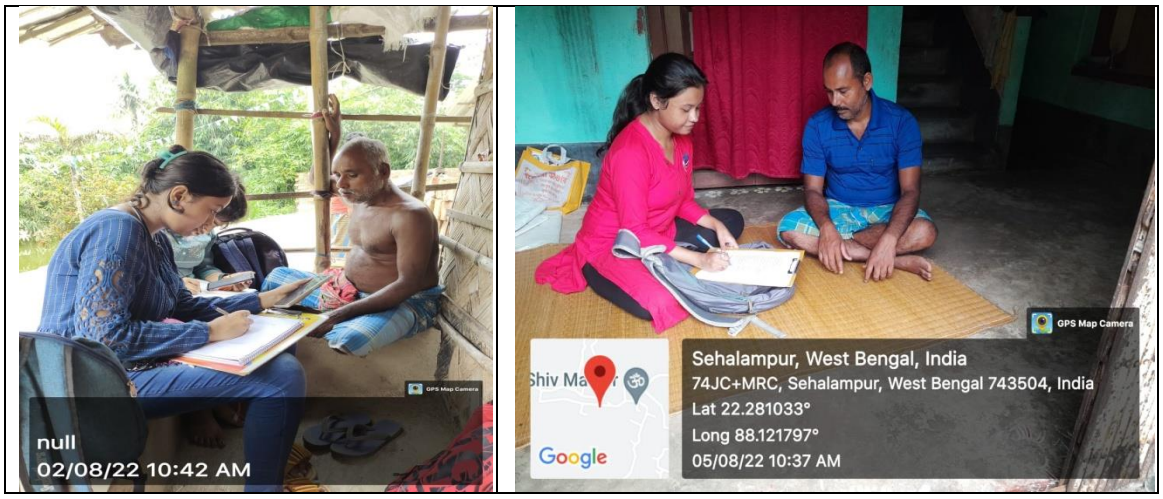
The total number of villages under study was six (6) bearing the population around 1200 on an average in which 52.80% is male and 47.20% female. Literacy rate among the female members is recorded over 90% (remarkable) which was more than their counterpart which was 84.73%. Total agriculture labourer 63% being the male and 24% female. The villages dominated by schedule caste. Geographical area of the villages is around 2700 ha. Net sown area is around 65%. Gross cropped area hovering around 62% and around 12% land used for non-agricultural purposes. Domination of hand drawn implements observed in the villages i.e. hovering around 65% of the total household followed by tractors and power threshers which are very negligible in number. Throughout the seasons (Kharif, rabi and summer) all the crops in different seasons are grown and it was observed that labour involvement in the cultivation process like sowing, intercultural operations, harvesting, threshing etc. Differences of wage rate has been identified that wage rate male labourer is around 300 rupees and female labourers get 250 rupees.

Family expenditure in the villages presented in the following diagram:



The following PRA tools were used to analyse the information collected from the village.

- ¬ Transect Walk
- ¬ Social Map
- ¬ Time Line
- ¬ Seasonality Diagram
- ¬ Cause and Effect Analysis
- ¬ Venn diagram



Agronomical Interventions

All the 7th semester students went to six number of selected villages. Students have interacted with the local farmers and observed the problems related to three agronomic crops namely rice, maize and sugarcane and gave technical guidance to improve the crop yield to get maximum profit. All the students have submitted RAWE report based on their observation along with possible solutions to overcome the problems.

Problems identified

- Use of traditional methods.
- Lack of suitable variety.
- Water stagnation.
- Lack of knowledge on nutrient management, weed management, insect-pests management and disease management.

Possible solutions

- Use of submergence tolerant rice varieties i.e. Swarna Sub-1. Samba Masuri Sub-1 and IR 64 Sub-1.
- Split application of fertilizers.
- Practicing Integrated Nutrient Management (INM) and Integrated Weed Management (IWM).
- Use of proper spacing.

Plant Protection Interventions

All the 7th semester students went to six number of selected villages. Students have interacted with the local farmers and observed the problems related to field and vegetables crops namely rice, maize, sugarcane, brinjal, bitter gourd, bottle gourd, pumpkin and gave technical advice to manage crop pests. All the students have submitted RAWE report based on their observation along with possible solutions to overcome the problems.

Problems identified

- Infestation by yellow stem borer in rice.
- Infestation by fall army worm in maize.
- Aphid and fruit fly infestation in cucurbitaceous vegetables.
- Infestation of shoot and fruit borer in brinjal.

Possible solutions

For yellow stem borer of rice

- Clipping the tips of seedlings before transplanting to reduce the carryover eggs from the seedbed to the transplanted fields.
- Placement of trichocard (*Trichogramma japonicum*) if possible.

- Spraying of cartap hydrochloride 50% SP @ 2 g/lit. of water.

For fall army worm of maize

- Application of dry sand in to the whorl of affected maize plants soon after observation of pest incidence in the field.
- Application of Sand + lime in 9:1 ration in whorls in first thirtydays of sowing.
- Spraying of biopesticide *Bacillus thuringiensis* var. *kurstaki* @ 2g/lit. of water.
- Spray Spinetoram 11.7 SC @ 1 ml/lit. or Chlorantraniliprol 18.5 SC @ 0.20ml/lit. or Thiamethoxam 12.6% + Lambda cyhalothrin 9.5% ZC @ 0.4 ml/lit. of water.

For vegetable pests

- Intercropping of brinjal (2 rows) with coriander (one row) or fennel (1 row) for BSFB.
- Spraying of emamectin benzoate 5% SG @ 0.4 g/lit. orchlorantraniliprole18.5% SC @ 0.4 ml/lit. of water.
- For fruit fly, protein bait spot spray technique and male annihilation and for aphids application of systemic insecticides

Soil Interventions

Under this component the students were involved in different activities i.e. Soil Testing, Collection of soil sample by using Geo positioning system (GPS). They studied the use of soil health card for fertilizer schedule, Integrated Nutrient Management (INM) and its importance in soil quality improvement, role and importance of micronutrients in crop production, soil salinity, alkalinity and acidity and its reclamation. Natural Resource Management (NRM), role of Bio-fertilizer in improving soil health, soil properties important for soil health, Quality control in fertilizer, Soil degradation, improvement of soil health for sustainable agriculture, vermi-compost and its role in improving soil health,

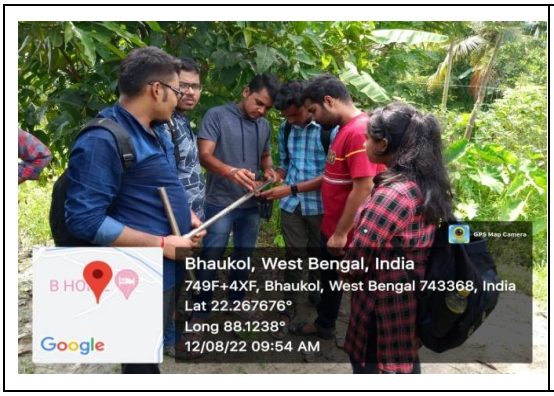
classification of green manures & role in improving soil health, Water management, Crop rotation. All the 7th semester students went to six number of selected villages. Students interacted with the local farmers and observed the problems related to soil and gave technical guidance to improve the soil status for better crop yield so as to get maximum profit. Moreover, the students collected soil samples from the villages and analysed the same and lastly they prepared Soil Health Card which were distributed among the farmers on National Farmers Day which was celebrated at the university campus on 23rd December, 2022. Lastly all the students have submitted RAWE report based on their observation along with possible solutions to overcome the problems

Problems identified

- Over use of chemical fertilizers
- Less use of organic manures
- Soil salinity issue.
- Water stagnation.
- Lack of knowledge on nutrient management.

Possible solutions

- Modern technologies in application of fertilizers.
- Practicing Integrated Nutrient Management (INM)
- Use of proper dose of fertilizer.



Fruit and Vegetable Production Interventions

All of the 7th semester students visited six distinct villages. Students have interacted with local farmers and witnessed issues with two fruit guava and mango and two vegetable brinjal and okra crops. In order to increase crop yield and maximize profit, they provided technical advice. All the students have submitted RAWE report based on their observation along with possible solutions to overcome the problems.

Problems identified

- ✓ Using conventional techniques of cultivating fruit and vegetable crops.
- ✓ Procurement of planting material (seeds, saplings etc.) in fruit and vegetable crops from unauthentic sources.
- ✓ Lack of knowledge on nutrient management, weed management, insect-pests management and disease management.

Possible solutions

- ✓ Procurement of planting material from any genuine and reliable sources viz. SAUs, KVKs, Research Institutes etc.
- ✓ Adopting special horticultural practices *viz*. bending of guava, mulching etc.
- ✓ Practicing Integrated Nutrient Management (INM) and Integrated Pest and Disease Management (IPDM).
- ✓ To follow standard spacing.

Food Processing and Storage Intervention

Students from the 7th semester were divided into 6 groups with 40 students each. The visit was scheduled for two groups each in a day from 26th August to 2nd September, 2022 to four selected villages namely Darikrishnanagar, Asurali, Jhsudhari, Uttar Bhadura. Food processing units located to these villages such as Puffed rice mill, Bakery unit, Rice mill were visited by the students and interacted with the staffs/people running the units. The problems faced by them for running the business were observed by the students and were suggested possible solutions to increase the revenue of their units. Regarding the storage interventions, the post-harvest treatment of grains and storage structure were observed by the students and suggested solutions for efficient storage. In addition to the above visit, the students were taken to Honey Processing unit located in Vivekananda Institute of Biotechnology, Nimpith and Bakery unit of Saha Food Products and Confectionary (Taste and bite) located at Ashram More, Sarisha for enhancing their knowlegde. The students have learned the processing steps of honey and bakery products as well as the different equipment required for the preparation of different products.

Problems identified

- Use of traditional storage structure.
- Lack of proper spacing in processing unit.

- Inefficient waste disposal system.
- Inefficient packaging and storage environment.

Possible solutions

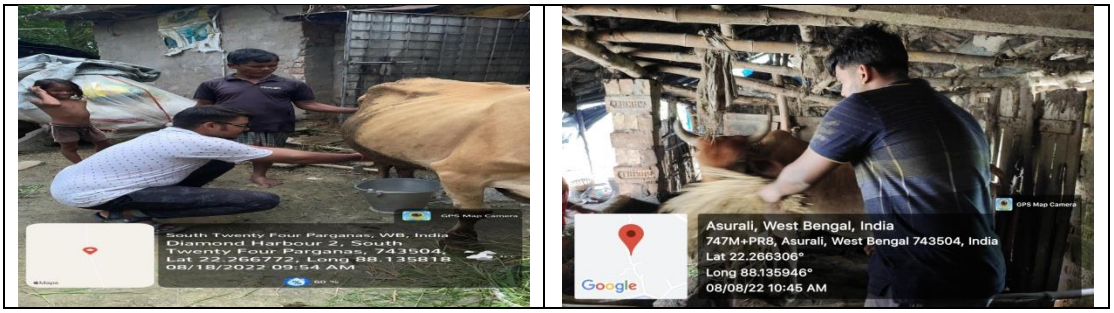
- Use of modern storage structures such as Silo, bins.
- Proper spacing should be maintained between different sections of the processing units.
- Proper disposal system should be provided.
- Use of high-quality packaging materials and cool storage environment for finished products.

Animal Intervention

Six separate villages, Asurali, Jaudari, Uttar Bhadura, Darikrishannagar, Sehalempur, and Laxmanpur, participated in the RAWE animal intervention. Students study a lot throughout this 8-week session, including how to raise animals, information about animal feed, various dairy products, green fodder, how to raise poultry, information about poultry feed, and market data regarding livestock. Each student in the RAWE curriculum selects a source farmer from whom they will spend the next eight weeks working. The main issue in these villages was the scarcity of livestock and the fact that most residents had no idea what breed their cows were.

Students take care of matters such as feed management, vaccine planning, and cleanliness concerns in both the cattle and poultry sheds. The residents of these villages are also aware of how crucial these aspects are from an economic standpoint.

During this intervention, students also travel to several locations, such as the VLDO headquarters, a cow farm, and a commercial poultry facility. During these excursions, students also learned about the many government programmes that are launched and how a commercial animal farm unit operates.



Extension and Transfer of Technology Intervention

All the programmes were planned based on the problem identified by the students. All the transfer of technology programme were based on the idea of creating awareness about modern crop management practices, providing information to the farmer's community as well as exploring new income opportunities for the rural community. Through these programmes the School of Agriculture and Allied Sciences got directly engaged with the farming community, Farmer-producer Company (FPC) and Self-Help Group (SHG) who played a pivotal role in the successful completion of the Rural Agricultural Work Experience Programme (RAWE) for our 7th Semester B.Sc. Agriculture students.

Two Farmers' Awareness cum Demonstration Programmes on Vermicompost Production were conducted at Ashotosh Mukherjee Block (SB-2) in The Neotia University campus. Farmers (both including male and females) from Sahelampur and Darikrishnagar village attended these programmes. The farmers were shown the process of vermicomposting and its application by the students under supervision of subject matter expert Dr. Tanuj Kumar Mondal, Dr Shraddha Bhattacharjee and Dr Abhishek Ghosh. The farmers were also given a guided tour of the vermicompost production unit and Dr. Mandal shared valuable information about pit construction with farmers. Students also showed the

farmers other structures present on campus (net house, poly house, etc.) as well as the aromatic and medicinal plants (vetiver, brahmi, mint etc.) growing in farm.

Another two Farmers' Awareness Programme on Vetivar and Economical use of coconut plant was organised at the premises of Pallymangal Agro-farmers Producers Company Ltd. under the supervision of Dr. Sarthak Bhattacharya (subject matter expert), Dr. Shraddha Bhattacharjee and Dr. Agniswar Jha Chakraborty. The various aspects of Vetiver and coconut cultivation including varietal selection, crop management practices, harvesting techniques, processing and economic feasibility were discussed. The chairman and the farmer members of the FPC participated in the programme.

Another Farmers' Awareness cum Demonstration Programme was conducted on Integrated Pest & Disease Management under the supervision of Dr. Koushik Sen (subject matter expert), Dr. Arghya Banerjee (subject matter expert), Dr. Shraddha Bhattacharjee and Dr Abhishek Ghosh. This particular program was attended by the farmers from Lakshmanpur village. The focus here was on Integrated Pest & Disease Management with symptoms and control measures of certain important insect pests and diseases prevalent in this region. The farmers were shown herbarium of insects and disease samples by Mr. Tanmoy Satpati after a presentation by the students. Thereafter a guided tour of the Soil Science laboratory was organised for the visiting farmers under the supervision of Mr. Sourav Mullick (subject matter expert).

Mushroom is not only an affordable source of nutrition; it also has excellent potential of becoming a viable income source for rural women. The women of a SHG from Jhaodari village attended a Farmers' Awareness cum Demonstration Programme on Oyster mushroom production technique. The students of 7th Semester B.Sc. Agriculture actively participated in this programme and assisted Dr. Solanki Sarkar (subject matter expert) in demonstrating the culture media preparation and production techniques to the visiting SHG members. The women from Jhaodari were extremely enthusiastic about taking up mushroom production in the future. Dr. Sarkar also made them aware of the various processing techniques of mushroom which can help the women prepare value added food items from their future produce.

d) Experiential Learning Programme (ELP)

Experiential Learning Programme (ELP) 2018-22 Batch:

Experiential learning programme is mainly focused on learning from direct experience by observation and participation as part of skill and entrepreneurship development. The school offered two modules to each student for experiential learning programme on choice basis. A total six modules were offered to the students in three groups detail as given below table:

Details of Experiential Learning Programme of 2018-22 Batch:

Sl. No.	Name of Courses	Faculty involved	No. of students
1	Organic Production Technology	Dr. Tanuj Kumar Mandal	72
2	Production Technology for Bio agents and Biofertilizers	Prof. Ananda K. Mandal	
3	Seed Production and Technology	Prof. B. C. Saha	68
4	Soil, Plant, Water and Seed Testing	Mr. Sourav Mullick	

5	Mushroom Cultivation Technology	Dr. Solanki Sarkar	71
6	Food Processing Technology	Mr. Arijit Purkayasta	

Each student submitted a detailed project report on one of the business idea from the two modules, which was presented by them and evaluated by internal and external experts. In order to teach the students 'how to prepare detailed project report' expert faculty members from NABARD were engaged.

Experiential Learning Programme (ELP) 2019-23 Batch:

The school offered all the twelve modules for experiential learning programme on choice basis to the students. Each student has chosen two modules out of the twelve offered. Six groups were formed as given below:

Details of Experiential Learning Programme of 2019-23 Batch

Sl. No.	Name of Module	No. of students	Name of the produce	Amount (Rs.)
1	Organic Production Technology	37	Vegetables and vermicompost	10,259/-
2	Production Technology for Bio agents and Biofertilizers		Azolla, VAM culture, Trichoderma, Pseudomonas spp. And waste decomposer	3563/-
3	Seed Production and Technology	60	Paddy seed	2504/-
4	Soil, Plant, Water and Seed Testing		Soil health card	2042/-
5	Mushroom Cultivation Technology	60	Oyster mushroom and mushroom spawn (oyster)	3150/-
6	Food Processing		Cookies, muffins and cake, tomato ketchup, shredded chicken pickle, kimchi, paneer, mushroom pickle, tofu, processed cheese, mango pickle, soyamilk	5000/-

7	Commercial Horticulture	27	Papaya seedling, zinnia seedling, dragon cutting	13,753/-
8	Floriculture and Landscaping		Gerbera and potted plant	2522/-
9	Commercial Beekeeping	20	Honey and wax	8204/-
10	Commercial Sericulture		Dry cocoon and silk thread	1250/-
11	Agriculture Waste Management	12	Traditional farm compost and NADEP compost	3435/-
12	Poultry Production Technology		Broiler bird and live bird, poultry (RIR bird) and egg	45,181/-

Total sale proceeds : Rs. 1,00,863/-

Amount deposited in bank account of each student: Rs. 359/-