School of Agriculture, ITM University, Gwalior

B.Sc. (HONS.) (AGRICULTURE)

RAWE Guidelines

(Department of Extension Education)

Index

Rural Agricultural Work Experience & Agro Industrial Attachment (RAWE & AIA)

RAWE – AN OVERVIEW

Many Emerging opportunities like new markets, emerging technologies, globalization of trade, climate change and sustainability are increasingly creating needs for agricultural experts. In the changed agricultural scenario, it has become essential to give a new impulsion in providing the agricultural graduates with high level of skill in combination with the modern out-look and management capacity. Hence, it is conceptualized to reorient graduates of Agriculture and allied subjects for ensuring and assuring employability and to develop entrepreneurs for emerging knowledge intensive agriculture by articulating knowledge, skill, ability and experiences. Thus, the quality of agricultural education should be enhanced to make it more suitable for market demand and develop skilled resources for Agriculture and allied sectors. In order to make the students ready for the present day requirement, the agriculture graduates should be practically well versed with the farming situations, existing rural set up and transfer of technology system.

In order to further sharpen the knowledge and skills of agricultural students, Rural Agricultural / (RAWE) is an important competence and confidence building programme offered in seventh semester of final year of the B.Sc. (Hons.) Agriculture programme. This Programme is a flagship activity during the seventh semester with the key objective of building self-confidence in the agricultural graduates by honing their professional skills at the under graduate level of students. This is a unique opportunity for the students to work with the farmers at their farms and identify various production, protection and marketing constraints.

The programme will provide a very good platform for students with an approach of "Learning by Doing" and "Seeing by Believing" and will give a new direction to the undergraduate programme which will develop thinking, skillful, expert, manager, human resource in the area of agriculture, veterinary, horticulture, forestry and other allied disciplines.

II. PROGRAMME STRUCTURE

Under this programme, every student is expected to work in the village along with farmers and visit nearby KVK's or Research Station and Agro/Horti-based industries. The programme structure as defined by ICAR's 5th Dean Committee is as below

Code	Course / activities	No. of weeks	Credit hours
	General orientation & On campus Training by different faculties	1 week	
RAWE-401	Village Attachment training Programme	8 weeks	8(0+8)
RAWE-402	Unit attachment in university/college KVK/Research station	5 weeks	6(0+6)
RAWE-403	Agro Industrial Attachment/ In-plant Training	3 weeks	4(0+4)
RAWE-404	Plant Clinic Attachment	2 weeks	2(0+2)
	Project Report preparation, presentation, and Evaluation	1 week	
	Total	**20 weeks**	**20(0+20)**

II. COMPONENTS OF RAWE

Consists of general orientation and on campus training by different faculties followed by village attachment/unit attachment in University/College/KVK or a Research station. The students will be attached with the agro-industries to get an experience of the industrial environment and working. At the end of RAWE/AIA, the students will be given one month for discussion, project report preparation, presentation and evaluation. The students would be required to record their observations in field and agro-industries and prepare their project report based on these observations.

Component 1: Rural Agricultural Work Experience (RAWE)

Course Objectives

1. To provide rural entrepreneurship awareness, practical experience in real-life situation and creating awareness to undergraduate students about practical agriculture and allied sciences.
2. To get the students familiar with socio-economic conditions of the farmers and their problems with reference to agricultural development.
3. To impart diagnostic and remedial knowledge to the students relevant to real field situations through practical training.
4. To develop communication skills in students using extension teaching methods in transfer of technology.
5. To develop confidence and competence to solve agricultural problems.
6. To acquaint students with on-going extension and rural development programmes.

Course Content

S. No.	Activity	Duration
1.	Survey of village	1 week
2	Agronomical Interventions	1 week
3	Plant Protection Interventions	1 week
4	Soil Improvement Interventions (Soil sampling and testing)	1 week
5	Fruit and Vegetable production interventions	1 week
6	Food Processing and Storage interventions	1 week
7	Animal Production Interventions	1 week
8	Extension and Transfer of Technology activities	1 week

Component III- Agro industrial attachment

Students shall be placed in Agro-and Cottage industries and Commodities Boards for three weeks. Industries include seed/sapling production, pesticides-insecticides, post-harvest-processing-value addition, agri-finance institutions, etc.

Course Objectives

1. To expose the students to Industrial environment, this cannot be simulated in the university.
2. To familiarize the students with various Materials, Machines, Processes, Products and their applications along with relevant aspects of shop management.
3. To make the students understand the psychology of the workers, and approach to problems along with the practices followed at factory
4. To understand the scope, functions and job responsibilities in various departments of an organization.
5. To expose various aspects of entrepreneurship during the programme period.

II. RAWE & AIA GUIDELINES

As per the 5th Dean's committee report, the RAWE for B.Sc. (Hons.) Agriculture programme will be offered during 7th semester to coincide with the Kharif season crop and it will be mandatory for the students to complete the programme with required number of weeks as given in course structure.

1. Student Registration and Eligibility

The students shall register for VII semester of the program and once the students are registered, they will become eligible to go for RAWE programme. The registration of Students for VII Semester shall be done at the School of Agriculture, ITM University in online/offline mode. The students will be allocated for KVKs/Research organization for RAWE programme and one week of orientation will be carried out for the programme. Participation in orientation programme is mandatory and compulsory to each student,

failing which they will not allow to proceed further in RAWE programme.

2. Student Attendance

1. The attendance of a student shall be maintained by the Course Coordinator and particulars shall be furnished to the Programme In-Cahrge, RAWE after every fortnight who will in turn communicate to the Dean, SOAG. A student will be under the administrative control of the Dean, SOAG. The minimum attendance of 75 % is required for this programme as per standard norms of B.Sc. (Hons.) Agriculture. The student shall be eligible to appear for the final evaluation/ examination, only if attendance requirement is met with.
2. The period of stay in the village/attachment to KVK/Research Station/AI shall not be extended to make up the shortage of attendance. In the event of falling short of attendance, the student has to register the RAWE when offered next.
3. The students registered for RAWE will not be allowed to leave the venue of their placement without written permission of the KVK-Head/ Concerned Coordinator RAWE at KVK/ Dean, SOAG. The permission will be granted only under emergency.

3. Discipline and Code of conduct

1. A student will devote his whole time to the approved training and will not be allowed to accept or hold another appointment paid or otherwise during RAWE programme.
2. If a student shows unsatisfactory progress during the course of his training or gives up the chosen course of studies before its completion without any prior approval of the Dean, SOAG or is irregular in attendance, he/she will be debarred.
3. All students should maintain good harmony with farmers/villagers/workers during their stay or attachment to village/KVK/Research station. The students shall maintain good discipline during RAWE activities. Students whose activities are prejudicial to the interest of the programme /village/institution or subject to indulging in any unethical practices/malpractices shall be suspended from RAWE.

4. Student Supervision and monitoring of programme

- The designated course Coordinator will be responsible to supervise and guide the students as per the procedure laid down in this Manual and directives of the KVK-Head/Dean. The course Coordinator/Course In-Charge will ensure that all the rules and regulations of the training institute/KVK are strictly adhered to.
- The students will be required to maintain a daily report as per the prescribed proforma and produce the report to the Course Coordinator at the end of the course and get his/her work verified from RAWE In-charge at KVK/RS. The students will be required to submit a comprehensive report specified in the plan of work for RAWE.
- The students will be monitored for their progress by the Course Coordinator/course In-Charge bi-weekly. The coordinator of programme shall monitor the weekly progress of students in consultation with Course In-charge.

5. Evaluation

The students will prepare a report of all the components as specified in proforma and present it before the Evaluation Committe at the end of the programme. Hard copy of the report should also be submitted. The following evaluation procedure will be followed

Code	Activity	Credit(s)	Maximum Marks
RAWE-401	Village Attachment training Programme	8(0+8)	100
RAWE-402	Unit Attachment	6(0+6)	100
RAWE-403	Agro-Industrial Attachment/ In-Plant Training	4(0+4)	100
RAWE-404	Plant Clinic Attachment	2(0+2)	100
	Total	**0+20**	**400**

III. IMPLEMENTATION OF PROGRAMME AND ACTIVITIES UNDER RAWE

1. Selection of KVK/Research Station/Agro-Industry

The students will be placed in ICAR or SAU's KVK or Research Station for which the permission from respective KVK or research station will be taken in advance. Similarly for one month internship in different agro industries, the permission and procedure of internship will be finalized in advance.

2. Registration and Orientation of students

Immediately after the orientation, the students will proceed for their KVK or research station.

Registration

The students shall register for RAWE programme during VII semester in B.Sc. (Hons.) Agriculture degree programme.

Eligibility for registration and other requirements

1. Students undergoing studies leading to the award of B.Sc. and its equivalent a degree at Agricultural Sciences at Agricultural University shall be eligible for a period of one semester.
2. A student will devote his whole time to the approved training and will not be allowed to accept or hold another appointment paid or otherwise.
3. 75 per cent attendance is compulsory for students registered for RAWE programme, failing which

they will have to repeat the programme at their own cost.

4. The students registered for RAWE are not allowed to leave the venue of their placement without written permission of Coordinator RAWE / Dean, College of Agriculture. Permission will be granted only under emergency.

3. Village Stay/Placement/Attachment

On completion of orientation programme at SOAG, students shall be allotted by the Programme Coordinator to the selected KVKs/Research organization. The students need to work at farmer's field under the supervision of KVK in-charge. The village stay programme is one of the most important components of the RAWE which will helps the students to know the issue-based organizations and make them committed to the rural mass and to their profession The village stay programme envisages study of real rural situation-village settlement pattern, demography, climate, land utilization pattern, resource inventory, infrastructural facilities, rural institutions, organizations, groups, customs, beliefs and value systems. The students shall have to make their own arrangements for boarding and lodging in the village. Students are required to collect information prescribed in the Manual or advised by the teachers through interaction with the selected farmers individually and also perform extension activities in the village/farmers' fields. The students will be directly interacting for regular guidance with RAWE Coordinator/In- Charge.

Survey of Village

The students shall take-up a survey of the village as per the prescribed scheduled. The students shall be required to collect the data on overall condition of village, resource endowment and its utilization, problems of labor and employment and other important economic aspect detailed in the schedule. The student shall also conduct a PRA of the village.

PRA (Participatory Rural Appraisal)

Participatory rural appraisal (PRA) is an aim to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes. PRA can be described as a family of approaches, methods and behaviours that enable people to express and analyse the realities oftheir lives and conditions, to plan themselves what action to take and to monitor and evaluate the results.

Origins of Participatory Rural Appraisal

By the early 1980's, there was growing dissatisfaction among development experts with both the reductionism of formal surveys and the biases of typical field visits. In 1983, Robert Chambers, a Fellow at the Institute of Development Studies (UK), used the term Rapid Rural Appraisal to describe techniquesthat could bring about a 'reversal of learning'. By the mid 1990's, the term RRA had been replaced by a number of other terms including 'Participatory Rural Appraisal (PRA)' and 'Participatory Learning and Action' (PLA).

What is Participatory Rural Appraisal (PRA)

PRA, an approach towards empowering the poor and marginalized communities, offers a basket of techniques. It helps to learn from as well as with the community or villagers. A set of principles, a processof communicating and interacting with the participants (villagers/ community people) using a set of menu of methods for seeking their participation. In PRA, the use of local graphic representations createdby the community that legitimize local knowledge and promote participants' empowerment.

"An approach (and family of methodologies) for shared learning between local people and outsiders to enable development practitioners, government officials and local people to plan together appropriate

interventions (1998)."

Principles of PRA

Different practitioners would find different principles but most would agree to include the following

1. Using optimal ignorance: This refers to the importance of knowing what it is not worth knowing.It avoids unnecessary details and irrelevant data. It does not measure more precisely than is needed. It optimizes trade-off between quality, relevance, accuracy and timeliness.

2. Offsetting biases: Especially those of rural development tourism, by being relaxed and not rushing, listening not lecturing, probing instead of passing on to the next topic, being unimposing instead of important and seeking out the poorer people and their concerns.

3. Triangulation: Using more than one and often three, sources of information to cross-check answers.

4. Learning from and with rural people: Directly, on the site and face-to-face, gaining from indigenous physical, technical and social knowledge.

5. Learning rapidly and progressively: With conscious exploration, flexible use of methods, opportunism, improvisation, iteration and cross-checking, not following a blueprint program but adapting through a learning process.

Key Features of PRA

1. Participatory process, provides vast scope and space for the community/participants
2. No preset questionnaires; rather semi structured/open-ended interview technique followed
3. Interactive process and exchange of ideas
4. Enables people and outsiders to learn through sharing of information
5. Flexibility in using methods, innovate adaptable methods to suit local conditions

Do's

1. Stay in the village along with the villagers
2. Learn to unlearn by staying with the people, by more of listening and less of talking
3. Establish a rapport with the people
4. Organize do-it-yourself to start the field work. This will involve the team in trying their hands at everyday local activities
5. Choose a place in consultation with the people where men, women and people from different sections of the community can gather and participate
6. Create an open and enabling atmosphere to encourage participation
7. Start and build up interaction and dialogue gradually
8. Meet the people at their convenience. Ensure that the team from outside is multidisciplinary innature
9. Decide the role of each member of the team from outside
10. Cultivate the attitude of letting people to set agenda
11. Ask open-ended questions in an informal way. Resort to the six helpers of PRA: What? When? Where? Who? How? and Why?
12. Use locally available materials in all PRA exercises
13. Be humble in your approach, respect the local people, their culture, their customs and their wayof life

14. Be flexible in your approach
15. Be an active participation in all the PRA deliberation
16. Be aware of the conflicts, if any; deal with them in a positive way
17. Be conscious of the silent and invisible people in the village
18. Be sensitive to the feelings of the people
19. Be careful about your body language
20. Think about the possible sequences of methods that can be used before leaving for the field
21. Share your knowledge with the people
22. Hand over the stick

Don'ts

1. Don't fail to listen closely
2. Don't ask leading questions
3. Don't ask intensive questions
4. Don't fail to probe into issues
5. Don't fail to judge the responses
6. Don't interrupt
7. Don't dominate
8. Don't lecture
9. Don't personalize issues
10. Don't make false promises
11. Don't be arrogant and obsessive
12. Don't be judgmental
13. Don't use tricky language
14. Don't decide; rather facilitate the people to decide

Methods

PRA employs a wide range of methods to enable people to express and share information and to stimulate discussion and analysis. Many are visually based, involving local people in creating.

For example: Maps showing who lives where and the location of important local features and resources such as water, forests, schools and other services; flow diagrams to indicate linkages, sequences, causes, effects, problems and solutions; seasonal calendars showing how food availability, workloads, family health, prices, wages and other factors vary during the year; matrics or grids, scored with seeds, pebbles or other counters, to compare things - such as the merits of different crop varieties or tree species, or how conditions have changed over time.

PRA activities usually take place in groups, working on the ground or on paper. The ground is more participatory and helps empower those who are not literate. Visual techniques provide scope for creativity and encourage a frank exchange of views. They also allow crosschecking. Using combinations of PRA methods, a very detailed picture can be built up, one that expresses the complexity and diversity of local people's realities far better than conventional survey techniques such as questionnaires.

Selection of participatory methods and their uses

Participatory Method	Brief description	Examples of particular use
Timelines	Historical profiles of longer-term events or trends	Fish catch over time, productivity changes, policy changes
Seasonal calendars	Graphical representation of seasonal events or trends	Labour availability, hydrographic changes
Transect walks and through particular areas	Land and water-use maps based on walking capital, local knowledge of microhabitat, current use of aquaticresources	Quality and quantity of naturalresource maps
Social maps	Maps locating key social features	Access to services and infrastructure
Wealth ranking	Socio-economic categorizationof households	Assets, income
Preference ranking	Ordinal ranking, e.g. based on pairwise comparisons, based on defined criteria with scoring	Livelihood strategies, assets and matrix ranking access to services (e.g., fish for conservation)

Practical applications

Since the early 1990s, PRA approaches and methods have evolved and spread with astonishing speed. Originating mainly among Non-Government Organisations (NGOs) in East Africa and South Asia, they have since been adopted by government departments, training institutes, aid agencies and universities all over the world. They are now being used in at least 100 countries. PRA has been applied in almost every domain of development and community action, both urban and rural.

PRA as a new approach and method in which rural people themselves do much of the investigation, presentation, analysis, planning and dissemination than has been normal past.

Types of PRA Methods

PRA Methods		
Space Related	**Time Related**	**Relation Method**
• Social and Resource Map • Participatory Modeling Method • Mobility Map • Services and Opportunities Map • Transect walk • Participatory Census Method	• Timeline • Trend Analysis • Historical transect • Seasonal diagram	• Cause effect • Network Diagram • Process Map • Well-being Ranking • Venn Diagram • Pair-wise ranking • Matrix ranking • FF Analysis • Pie diagram • Livelihood analysis • Spider Diagram • Body Mapping

Stages of participation

Generally, the following five stages are followed for PRA in qualitative method

1st stage : Outside experts tell and manipulation the villagers

2nd stage : The outside experts inform participants

3rd stage : The outside experts and participants consult each other to make decision together

4th stage : They act together

5th stage : The outside experts delegate authority and support to the participants

Advantages of PRA

1. Identification of genuine priorities for target group
2. Devolution of management responsibilities
3. Motivation and mobilisation of local development workers
4. Forming better linkages between communities and development institutions
5. Use of local resources
6. Mobilisation of community resources
7. More sustainable development activities

Disadvantages of PRA

1. Raising expectations which cannot be realized.
2. Proposal of development plans which participating agencies cannot respond to
3. Risk of "capture" of activities by local interests
4. Failure to take account of stratification in communities

1. Social mapping

It is used to present information on: village layout, infrastructure, population, social stratifications, chronic health cases, disability, malnourished children, family planning, vaccination, widows, destitute and so on.

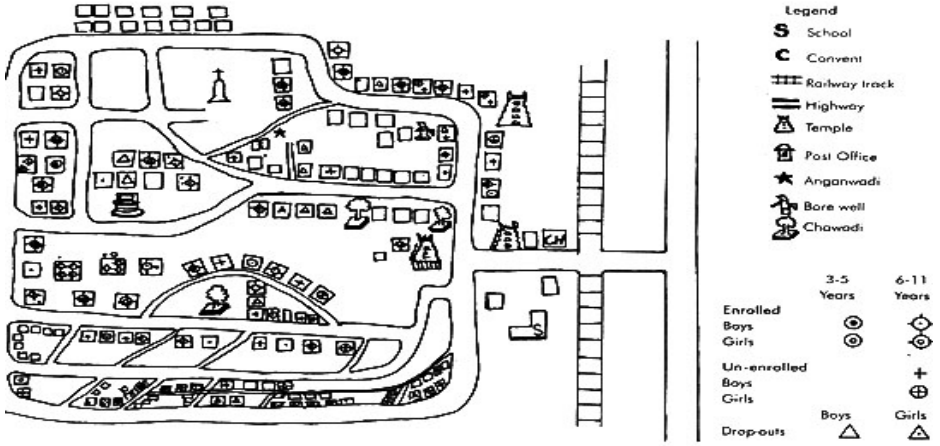
Procedures

1. Find the members of the community who know and who are willing to be a part of it
2. Take a walk with the participants and establish compass direction at the boundaries on the villageareas
3. Explain the purpose of the exercise to the participants and request them to start off. Leave them to use whatever the materials they choose
4. Watch the process alertly. Listen the discussions carefully
5. Take notes in as much detail as possible
6. Do not rush things. Avoid chipping in. Try to hand over the stick to them
7. Observe who are actively involved. Encourage and facilitate others who are not able to say anything
8. Once mapping is over, ask them to identify their houses in the map
9. Number the households and mark different households according to the need
10. Triangulate the information generated with others in the locality

Applications

1. Developing a comprehensive understanding of the physical and social aspects of community
2. Collecting demographic and other required information household wise

3. Providing a forum of discussion in which to unravel the various aspects of social life
4. Serving as a guiding instrument during the process of planning intervention
5. Serving as a monitoring and evaluation tool



Social map

2. Resource Map

A resource map is mainly drawn to present information on

- Land, water and tree resources
- Land used, land and soil types
- Cropping pattern
- Land, water management, etc.

Procedures

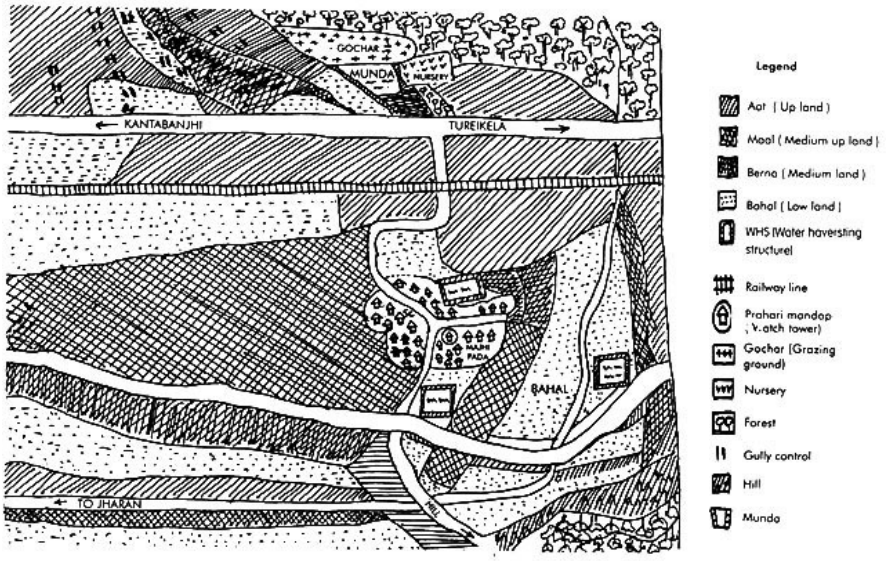
1. Establish rapport
2. Find out key informants
3. Explain the purpose
4. Select a place
5. Hand over the stick
6. Observe the discussion
7. Do not make objection
8. Observe if any of the member is excluded from discussion

Applications

Resource maps are used for depicting of various aspects related to the natural resource management of a locality including.

1. Topography and slopes
2. Forest vegetation and tree species
3. Soil type, fertility, erosion, etc.
4. Land and forest use
5. Water and water bodies

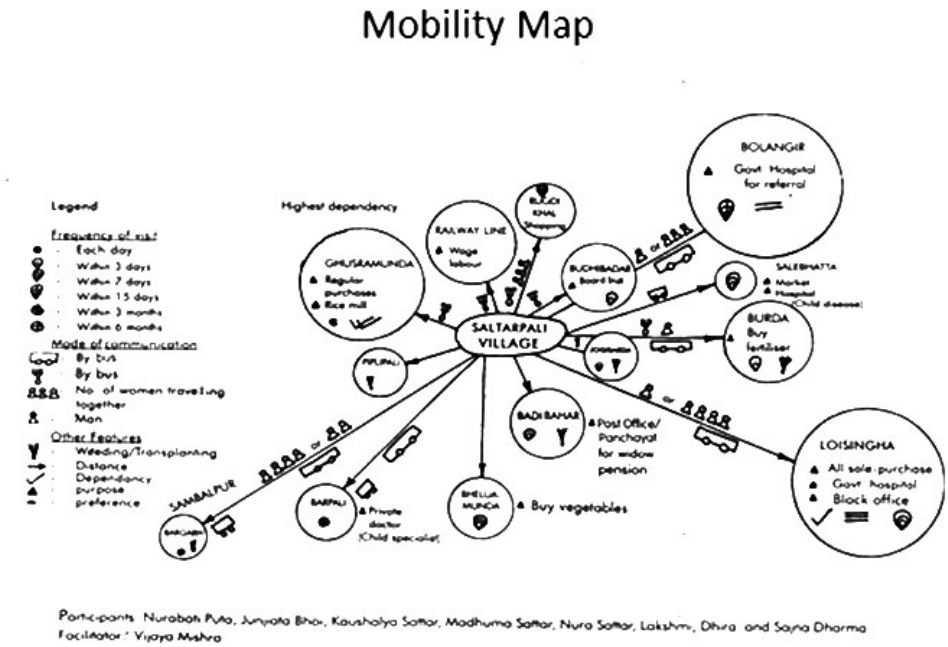
6. Agriculture cropping pattern



Resource Map

Other PRA Tools that have different uses and applications

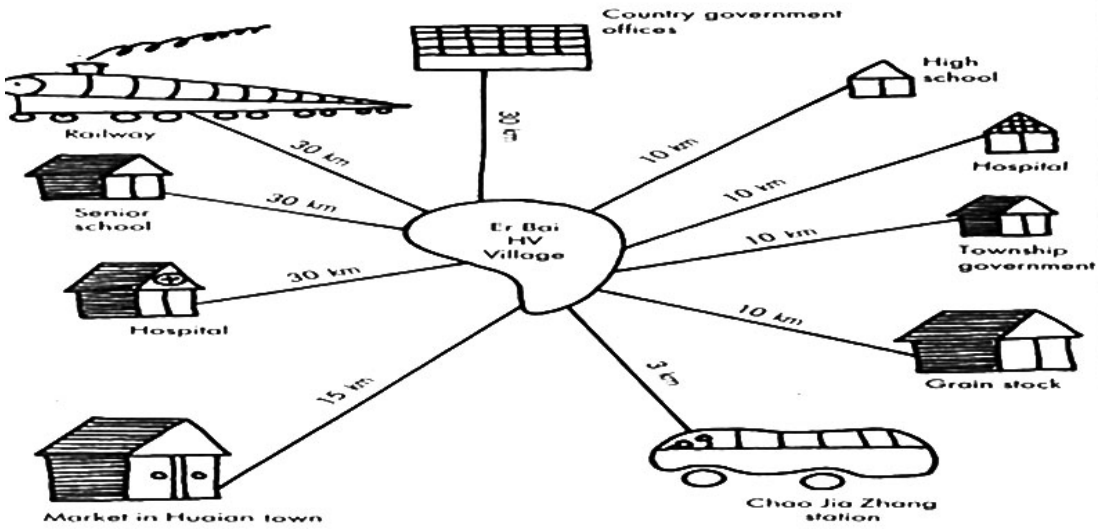
3. Mobility map: It is a PRA method to explore the movement pattern of an individual, a group or a community. The focus is on where people go and for what. Other aspects of movement like the frequency of visits, distance and the importance of the places visited may also be studied.



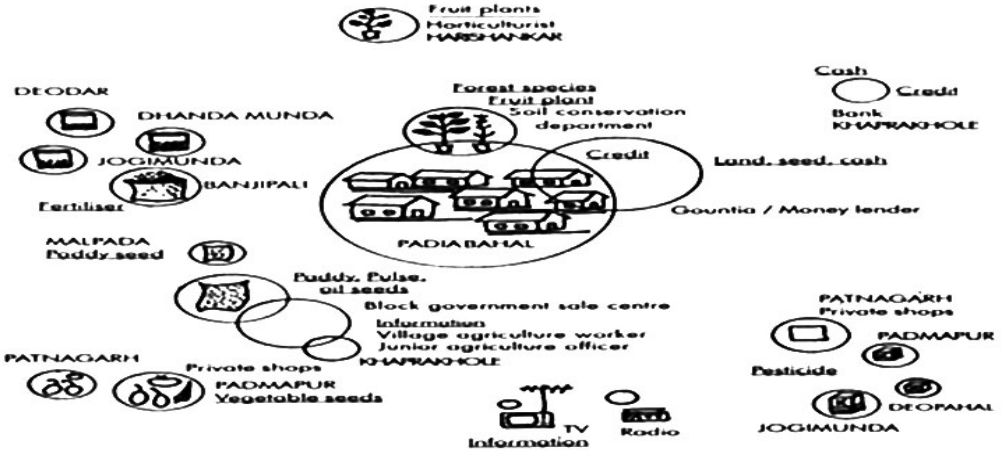
Participants Nurabati Pyta, Junyata Bhoi, Kaushalya Sattar, Madhuma Sattar, Nura Sattar, Lakshmi, Dhura and Sayna Dharma
Facilitator : Vijaya Mishra

4. Services and opportunities map : It is used to explore the spatial realities of the local people with specific reference to local people's perception of the services and opportunities available.
A services and opportunities map may appear similar to a mobility map in many ways. Here, however, the focus is on the availability of services and opportunities while, in the later, the focus is on the places local people visit.

Services and opportunities Map



Services and opportunities map of agricultural inputs



Legend

- Size of the circle indicates the importance of the input as perceived by the participants
- Less distance from the village means more accessibility
- Figure inside the circle shows magnitude of usage. The size of the figure is proportionate to the number of people depending on it
- Overlap shows the interrelation

Participants: Resham, Kahas, Budu, Krishna, Bharata, Duryodhan and Arjuna
Facilitators: S. Rath, Debabrata Patra and others

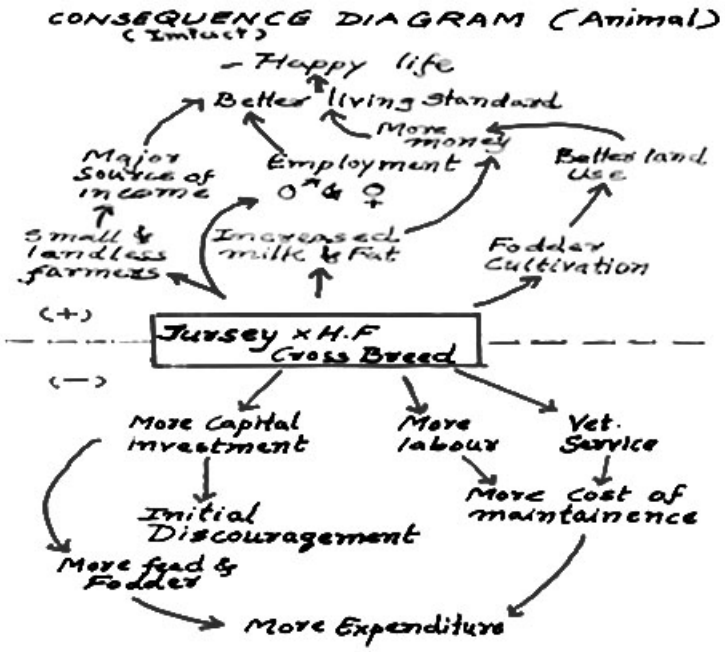
5. Transect walk: It provides a cross-sectional representation of different agro-ecological parameters including topography, land type, land usage, access, ownership, soil type, soil fertility, vegetation, crops, problems, opportunities and solutions.

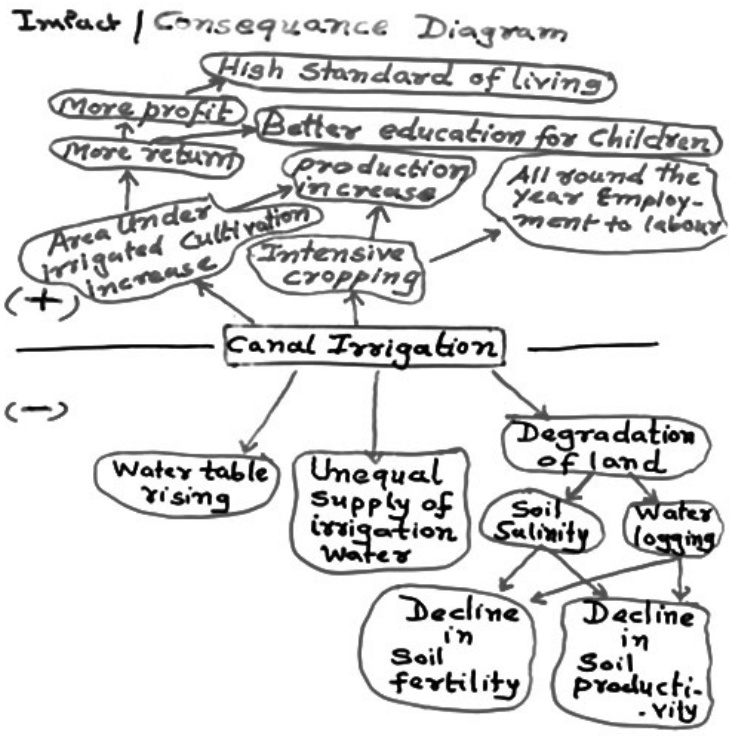
Transect

Land scape / Features						
Area locality	Tentel Khunti	Karla Pita	Kara Dungri	Gharia Munda	Latha Kend	Ghantabahal
Land types (local name)	Up land (Aat) Low land (Bahal) Hills (Parbat)	Mostly upland (Aat) Very little low land (Bahal)	Rocky mountain (Parbat) Upland (Aat) Forest (Patra)	Up land (Aat) Low land (Bahal) Plantation forest	Only low land (Bahal)	Mostly low land (Bahali and Bahal)
Water source	Kankara Jor	Dor Jodia	Seasonal stream	Karla Munda Lathakend Munda	Archu Mundo	Ningi Mundo, wells, tube wells
Species	Mahua, Rengal, Char, Dharua, Bija Sahas, Palsa, Womb, Kendu (wild animal)	No Forest Railway line	Chakundo, Niligiri, Bamboo Bhamar, Neem, Spoi Tentol	Nou Mundo, Akari Chakundo, Niligiri, Bhamar, Spo, Mango, Kaju (Patra land)	Mostly Palsa, Mahua	Neem, Banyan, and Mahua
Uses	Less cultivation Low productivity Forest produces	Cultivation of vegetables	Less cultivation Gross land, Plantation	Encroached field plantation, cultivation of more rice	Good cultivation of Paddy and vegetables	High yield, good cultivation of rice, millets, pulses
Ownership	Government and people	Government and people	Government and people	Soil conservation department and people	People	People

6. Impact diagram: It is used to identify and depict the impact of an activity, intervention or event. Impact diagram not only captures the planned changes but also takes into account other types of changes as perceived by the local people.

Impact Diagram





3. **Timeline:** It is an important PRA method quiet commonly used to explore the temporal dimensions from a historical perspective. Timeline captures the chronology of events as recalled by local people. It is drawn as a sequential aggregate of past events. The important point is that it is not the history as such but the events of past as perceived and recalled by the local people.

Time	Important events	Remarks
1994	• Built a sluice to prevent salinity	
1996	• Water in canal became fresh	
1997	• Started to grow double rice	Previously grew only one rice crop
1997	• Reclaimed garden: grew mango • Grew upland crop: maize, cucumber, water melon	Farmers got more incomes from growing upland crop
1999	• Started to grow triple rice	20% of farmers applied
2001	• Applied IPM on rice	
2002 - 2003	• Applied row seeding • Applied "3 reductions, 3 gains" technique	Farmers were successful in applying this tech.
2004	• Practiced rice – fish system	The system introduced by Cantho Univ. (by Project)
2006	• Some damages by brown plant hopper (BPH) and diseases on rice	50% of the village fields damaged by BPH
2006 - 2007	• Good harvest of rice	

4. **Trend Analysis:** It is a popular PRA method used to explore temporal dimensions with a focus on changes. It captures changes and trends related to certain variables over different spans of time. It is thus people's account of the past and how things have changed and hence also provides a historical perspective.

Trend analysis: Natural resources

Natural resources / Period	Water	Tree	Farmland
1960 (Independence)	• Rains daily during June • No wells • Water always in the river	○○○○○ ○○○○○	○○○○○ ○○○○○
1970 (End of civil war)	• Rains at least once in 2–3 days in June	○○○○ ○○○○	○○○○○ ○○○○
1979-80 (Shagari)	• Rains at least once in 4 days in June	○○○○○	○○○○○ ○
1999 (Today)	• Rains sometimes once in 8–10 days in June • River and well dry in dry season	○○○	○○○

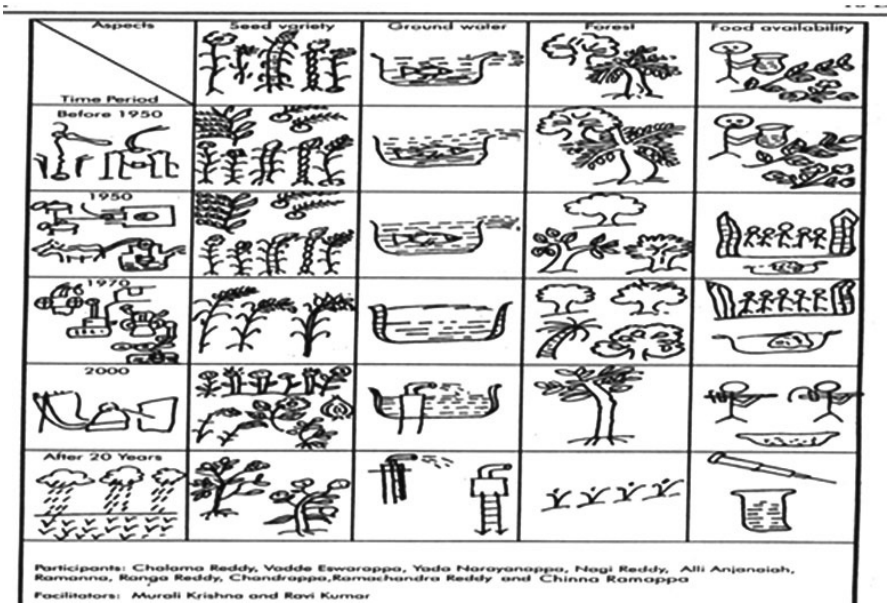
Participants: Adama, Elizabeth Sule, Omojo Peter, Ochesija Nichlas and Oglinulu Okpachu
Facilitators: Paul C

Trend analysis of agriculture: Women's perspective

Problem / Period	Pests	Weeds	Fertiliser	Transport	Processing machine
Before (15 years ago)					
5 years ago					
Now					
5 years later					

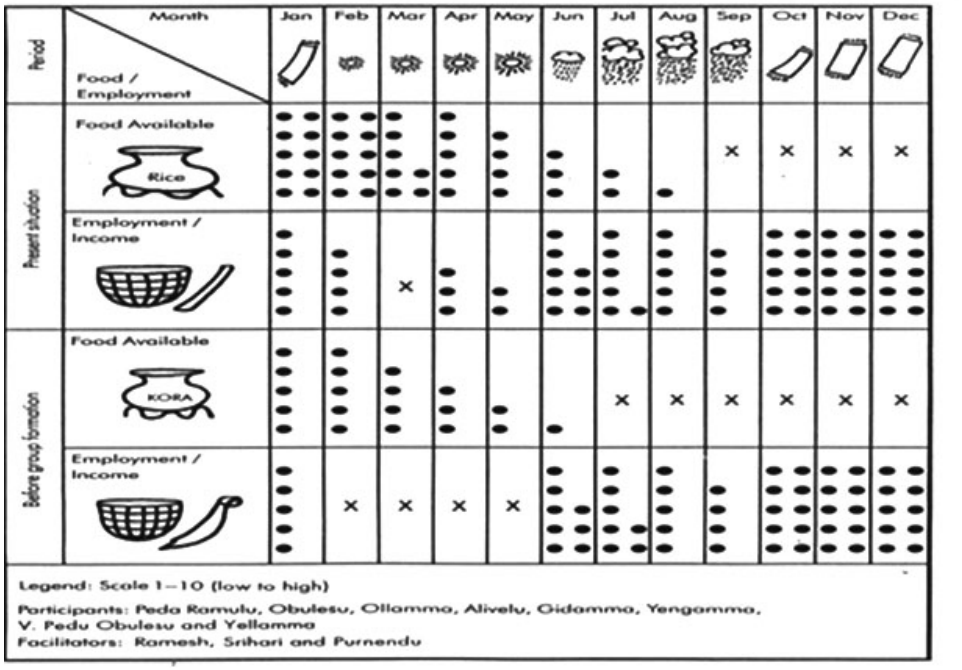
7. Historical transect: It is another time related PRA method which overlaps with trend analysis. Historical transect has traditionally been used for depicting changes in different aspects of natural resources, while trend analysis may cover many aspects as well.

Historical transect



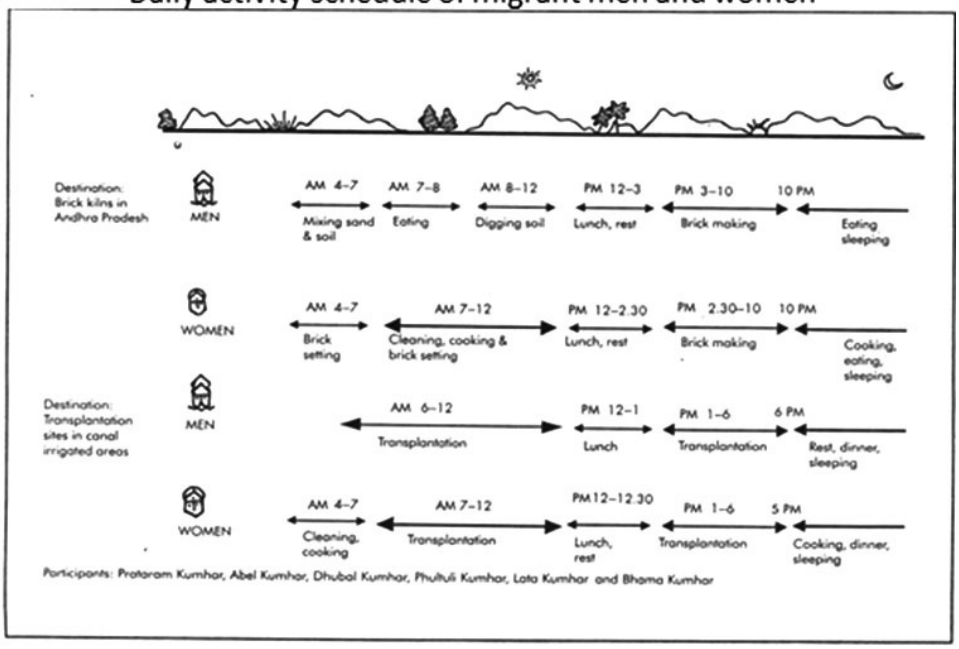
8. Seasonal diagram: It is also called seasonal calendar, seasonal activity profile and seasonal analysis. Seasonal diagram has been popularly for temporal analysis across annual cycles, with months or seasons as the basic unit of analysis. It reflects the perceptions of the local people regarding seasonal variations on a wide range of items.

Seasonality diagram



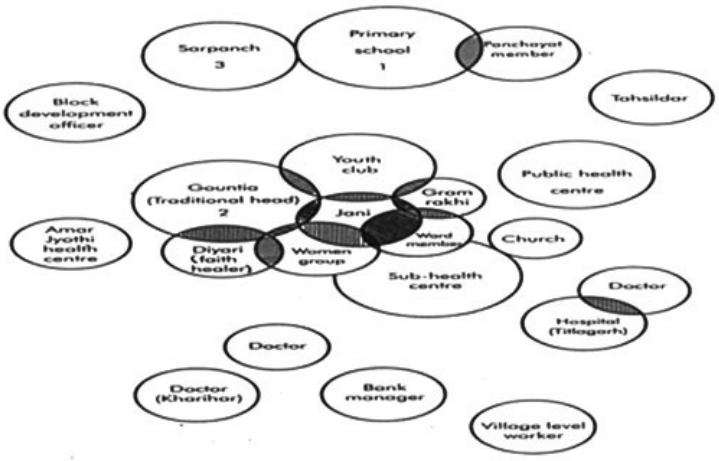
3. **Daily activity schedule:** It also referred to as daily schedule, daily activity profile, daily routine and 24 hour method, is a popular PRA method used to explore the activities of an individual, group or community on a daily basis.

Daily activity schedule of migrant men and women



4. **Venn diagram:** It is one of the commonly used methods in PRA to study institutional relationship and is sometimes also referred to as institutional diagram. It is however popularly known as "Chapati diagram" as it uses circles of various sizes to represent institutions or individuals.

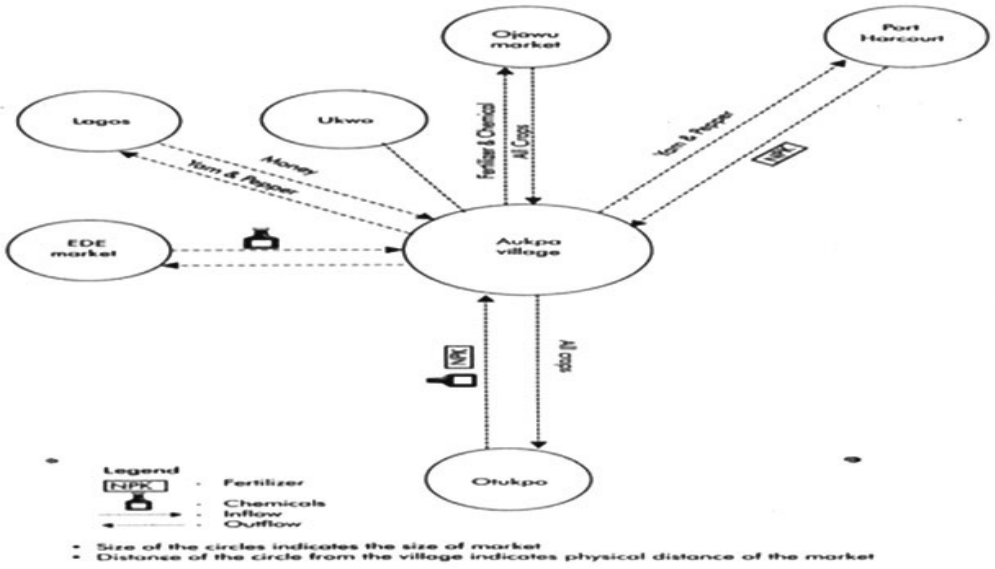
Venn diagram of different institutions



Legend
1. Size of the circle is proportionate to perceived importance—i.e., big circle more important
2. Distance from the centre proportionate to access—i.e., less distance means easier access

Participants : Solman Tandi, Senapati Ratai, Man Ratai, Madhu Bhoi, Shanker Bhoi, Sudan Gahir, Dhani Nag, Chharsing Manjhi and Judhisthar Sahu

Venn diagram of markets and agriculture



9. Pair-wise ranking: It is a popular PRA method. It helps in arriving at people's priorities and preferences.

In pair-wise ranking method, two items, attributes, factors etc., are compared at a time. This process of comparing of two at a time is carried on till each item has been compared with the other. The frequency of how many times each of the items have been preferred is ascertained. This frequency gives an idea of preferences of the people.

Pair-wise ranking method

Giver Caste / Taker Caste	Keulta	Gonda	Saurna	Gouda	Ganda	Sundi	Keuta
Keulta	×						
Gonda		×					
Saurna			×				
Gouda				×			
Ganda					×		
Sundi						×	
Keuta							×
Frequency of acceptance by others	4	5	5	4	-	1	2
Overall rank in caste hierarchy	1	4	3	2	7	6	5

Legend: Acceptance of water/food; Non-acceptance of water/food

Participants: Gopinath Tundi, Shridhar and Ranjit

10. Matrix ranking/scoring method: It is a popular PRA method which makes the comparison of various items based on different criteria. It helps in arriving at a comparative understanding of the items, based on certain characteristics or criteria and thereby making an informed choice.

Matrix Ranking for crop preference

Crops \ Criteria	High resistance to pests	Contributes to cash income	Grows well in low fertile soil	Over all ranking (Men)	Over all ranking (Women)	Increase / decrease in area	Increase / decrease in productivity
Yam	1	1	1	1	1	↑	↑
Guinea corn	5	6	6	2	6	↑	↑
Beans	8	4	9	6	4	↑	↑
Pepper	4	3	5	9	2	↑	↑
Cassava	2	9	3	4	8	↑	↑
Beni seed	3	2	2	3	3	↑	↑
Rice	6	5	7	5	7	↓	--
Maize	7	8	8	7	5	↓	--
Melon	9	7	4	8	9	↓	--

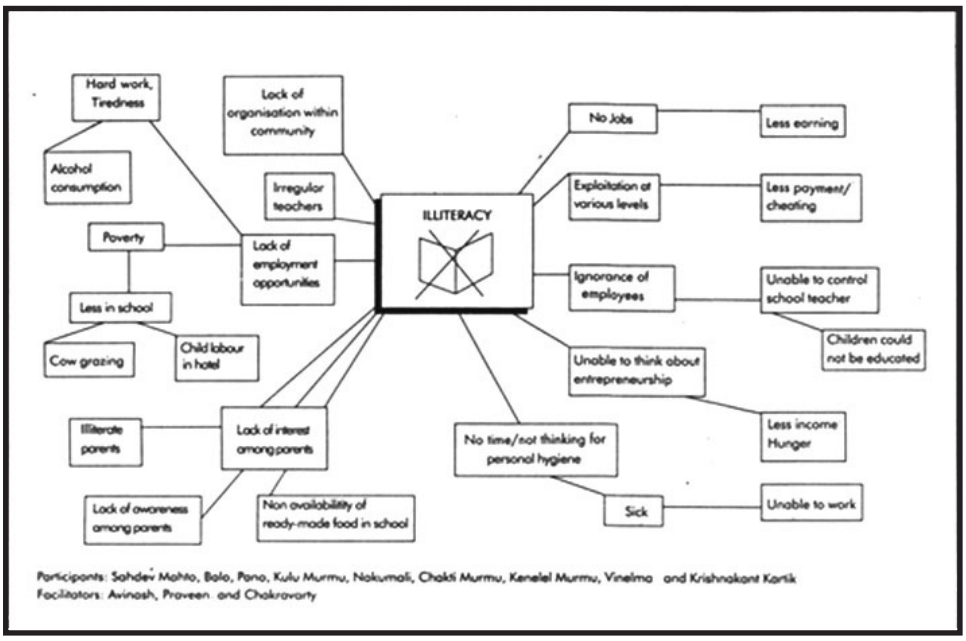
Legend ↑ = Increase, ↓ = Decrease, -- = No Change

Participants: Adejo Edo, John Oyide, Ochme Ogbenha, Godwin Andu (men); Antonia Omobonu and Esther (women)
Facilitators: Somesh Kumar and Andrew Ogwuchu

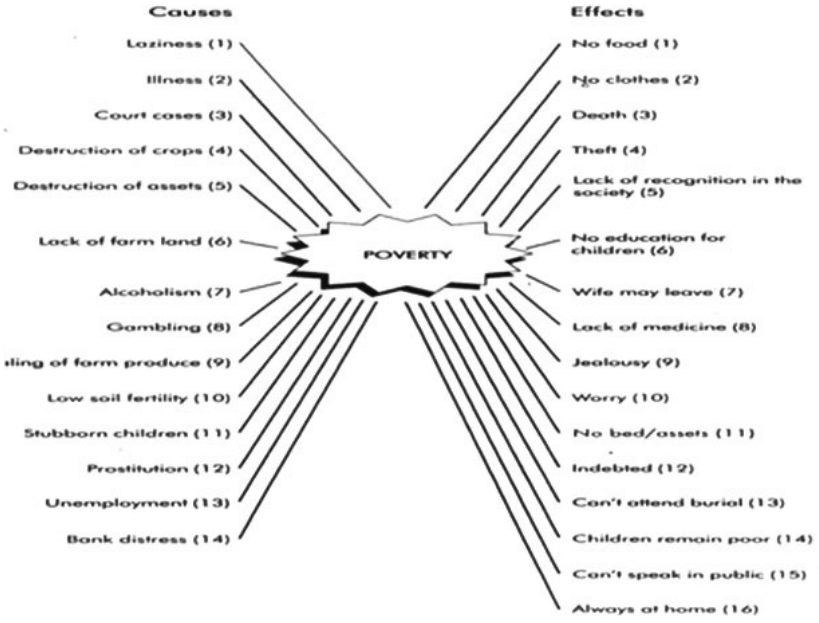
11. Cause effect diagram: It is also known as fishbone diagram, is a popular PRA method which focuses

on the causal factors of a phenomenon, activity, or problem, and the effects thereof.

Cause effect diagram



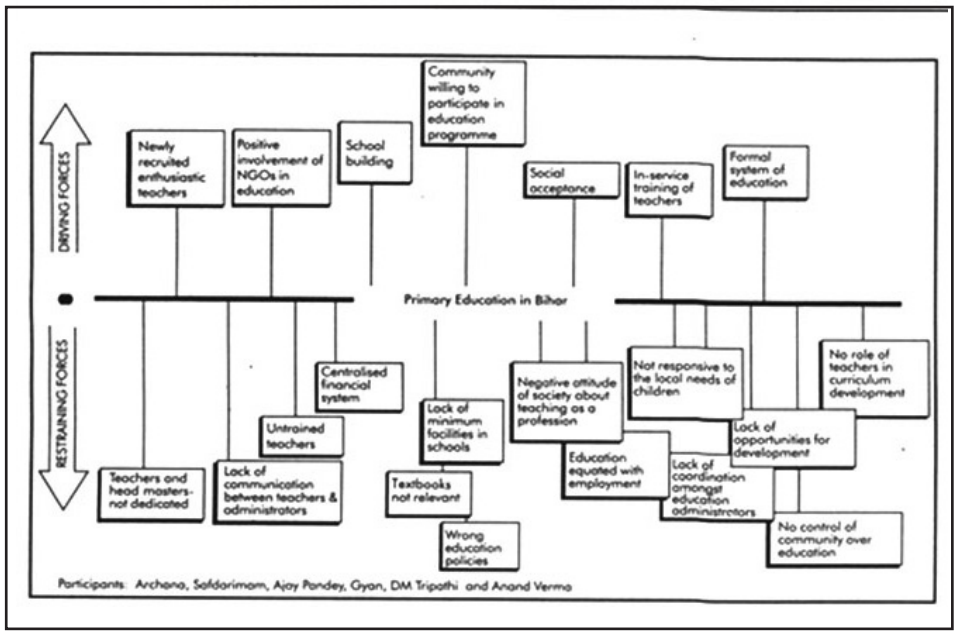
Cause effect diagram



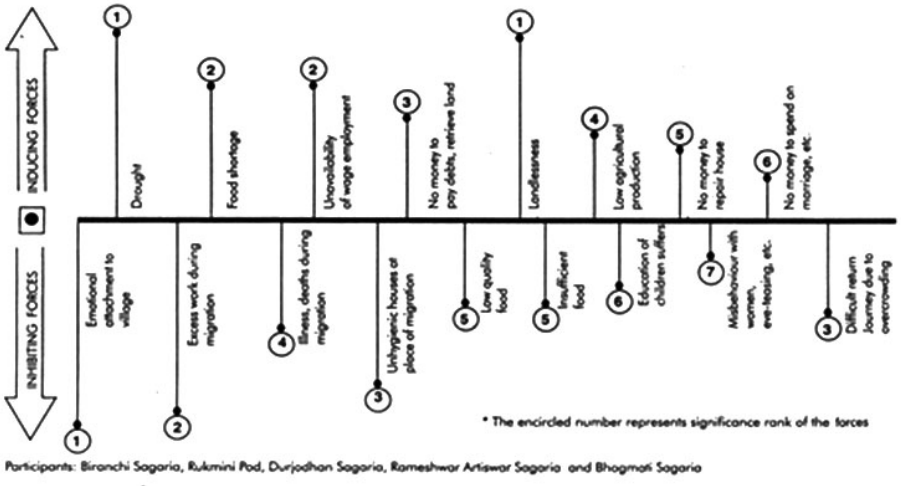
12. **Forced Field Analysis:** It is a technique used to identify and analyses forces affecting a problemsituation visually, so as to bring about a positive change.

Kurt Lewin is credited with the development of FFA. According to him, any situation or performance canbe viewed as a state of temporary equilibrium**.**

Force field analysis

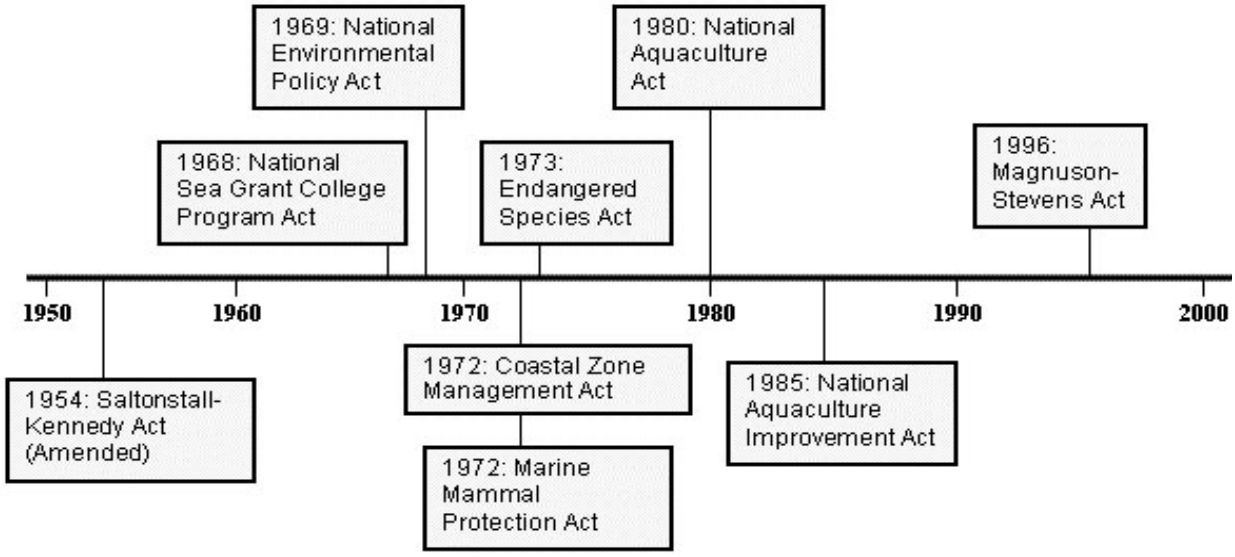


Force field analysis: Participation in local women's group



13. **Historical Calendars:** Historical timeline exercises are conducted to highlight trends and key points in the history of the Community or Village that households considered had an

impact on their livelihoods – either positively or negatively.



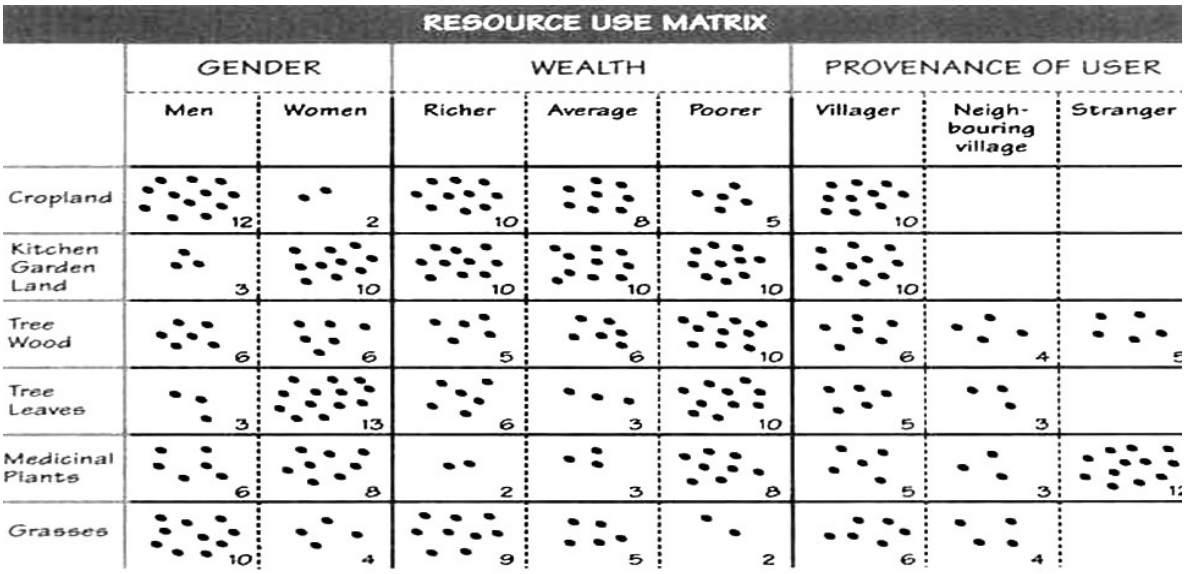
14. **Village Mapping**: Village mapping is a PRA tool used to facilitate understanding and discussion on local farming systems, physical resources/features and infrastructure considered important byhouseholds.

Matrix Scoring and Ranking Matrix: scoring and ranking is a PRA tool that allows

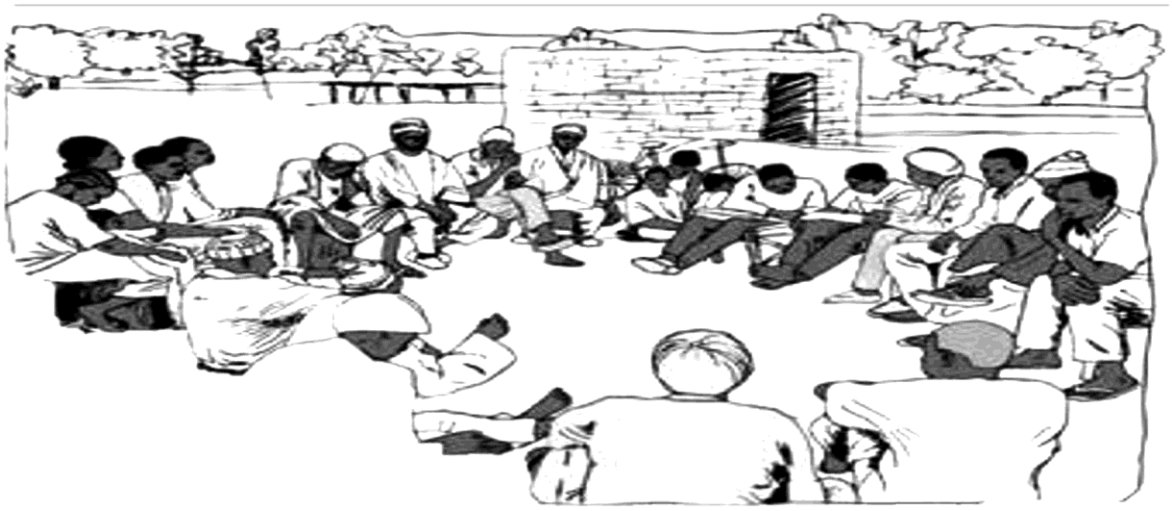
households to identify activities most preferred by households and why particular activities are preferred. This particular exercise is also used as a planning tool (e.g. to identify crops or livestock that households wish to cultivate and why). In addition, matrix scoring and ranking is also used effectively to evaluate household perceptions on a technology or activity.

Components	Variety 1	Variety 2	Variety 3	Variety 4
Fruit Quality				
Self-life				
Market price				
Total score				

15. **Wealth Ranking**: Wealth ranking is conducted to allow households to define differing levels of wealth in a Community and the households that belong to a particular class of wealth. The characteristics of each class of wealth are defined. The results of wealth ranking exercises facilitate an understanding of the characteristics and resources of households of a particular wealth class, particularly the poor.



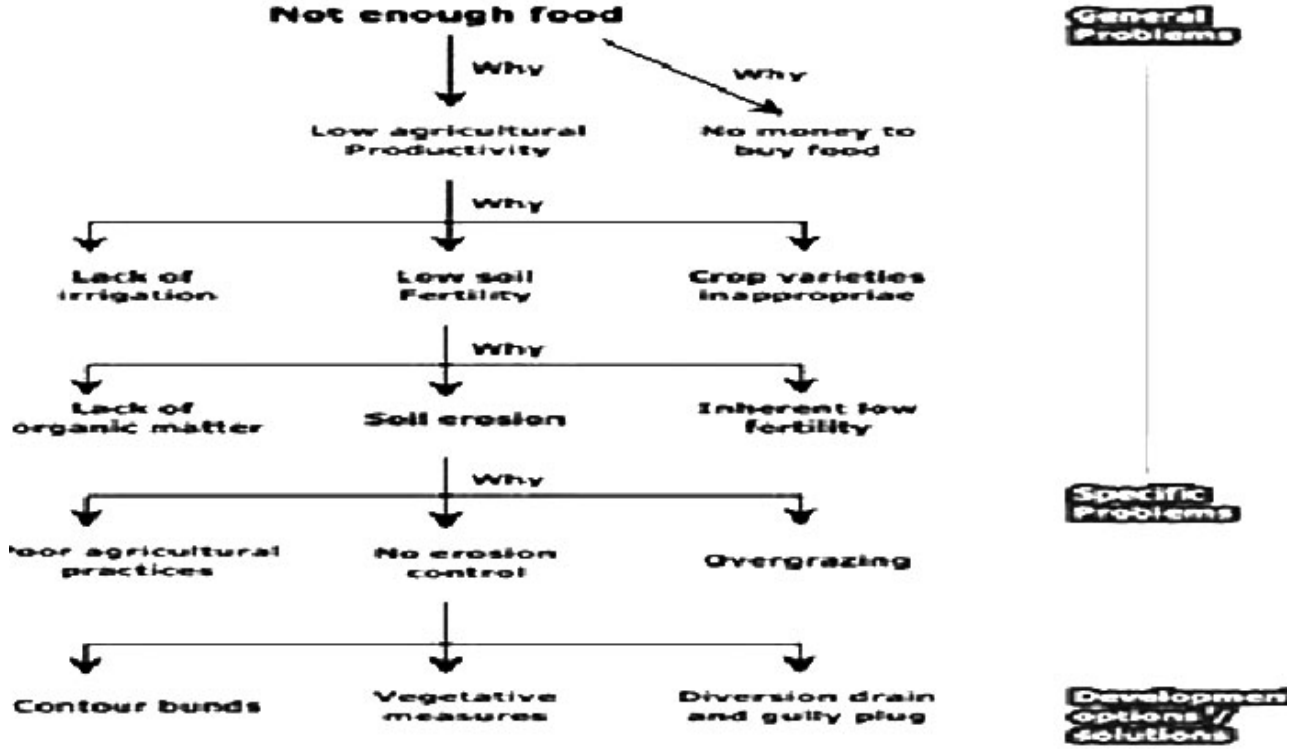
16. **Focus Group Discussions**: Focus group discussions facilitate discussion on a particular problem or development topic. The discussions ultimately encourage households to propose solutions to these issues.



17. **Problem Ranking**: A matrix that identifies compares and prioritizes main problems of villagers. It
serves as basis for focusing recommendations, alternative options or possible solutions.

Items	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Light meals	■ ■ ■	■	-	-	-	■
Begging	■ ■ ■	■	-	-	-	■
Migration	■ ■ ■ ■ ■ ■	■ ■	■ ■	■	-	-
Unemployment	■ ■ ■ ■ ■ ■	■	-	■ ■	■ ■	■
Income	-	-	■ ■ ■	■ ■ ■	■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■
Disease	-	■ ■ ■	■ ■ ■ ■	■ ■ ■	■	-
Rainfall	-	■ ■ ■ ■	-	-	■ ■	■ ■ ■

3. **Problem Cause Diagram**: A diagram which traces and diagnoses the root causes of certainproblems in the community or household.



Study question

1. **Visit a nearby village and conduct PRA of the village and prepare PRA report.**

****

3.1 Agronomical Interventions

In agronomical interventions, the students shall

1. Be exposed to various crops and different agronomical practices in farmer's field
2. Involve in production technology and management of various crops.
3. Cover a minimum of three corps, preferable from among cereals, oilseeds and pulse crops. If such crop diversification is not available, the student shall collect information on any three crops either with the host farmer or other farmer in or nearby village.
4. Maintain a record of work done in prescribed proforma.

3.2 Plant Protection Interventions

The students shall

1. Monitor cropped area for various plant diseases, insect-pests and physiological disorders prevailing in the area and get acquainted with various plant protection problems of the standing crops.
2. Conduct a survey on adoption of recommended plant protection measures and the incidence/occurrence of different diseases and insect pests on different crops in the village
3. Prescribe remedial measures for pest management and also demonstrate preparation of fungicidal / insecticide spray fluids for important plant protection measures.
4. Maintain a record of work done in prescribed proforma.

3.3 Soil Improvement Interventions

The students will do/learn following activities

1. Soil Testing- Collection of soil sample by using Geo positioning system (GPS).
2. Use of soil health card for fertilizer schedule,
3. Integrated Nutrient Management (INM) and its importance in soil quality improvement,
4. Role and importance of micronutrients in crop production, soil salinity, alkalinity and acidity and its reclamation.
5. Natural Resource Management (NRM)
6. Role of Bio-fertilizer in improving soil health, soil properties important for soil health, Quality control in fertilizer,
7. Soil degradation, improvement of soil health for sustainable agriculture,
8. Vermi compost and its role in improving soil health

3.4 Fruit and Vegetable production interventions

The students shall

1. Involve in field operation viz., seedbed preparation, nursery management, propagation etc. along with their host farmers.
2. Maintain a record of work done and will submit it at the end of the semester.

3.5 Rural Economics

The students shall

1. take up an agro-economic survey of allotted village (including surrounding villages)

and collect data on economic conditions of the village, population, vital statistics, cropping, patterns, irrigation facilities, resources endowment and its utilization, labour problems and employment and other economic aspects.

2. The student will also conduct a farm holding survey as per proforma given to him by the department.
3. Identify various marketing constraints of agricultural produce.
4. Record family budgets of the adopted farmers, one laborer and one rural artisan

3.6 Food Processing and Storage interventions

Students shall involve themselves to

1. study the methods of food processing, preservation and packaging
2. Traditional and modern storage structures, Indigenous Technological Knowledge used for food storage.
3. Post-harvest management and equipment for spices and flowers,
4. Quality control in Fruit and vegetable processing industry.

3.7 Animal Production Interventions

The students shall collect the information of

1. livestock on various aspects i.e. daily maintenance and feed expenses, milk production, milk disposal, dairy products
2. Poultry industry like eggs and birds, pig, fishery etc.

3.8 Extension and Transfer of Technology activities

The students will perform/involve in

1. Participatory Rural Appraisal, Identification of agricultural problems of the village and training needs of the farmers
2. Conducting method demonstrations of improved practices, organization of short duration farmers training camps, field visits and agricultural exhibitions
3. Study of the on-going rural and agriculture development programme in the villages, Visit to various village institutions and study their role in development programmes and other extension activities
4. Arrange farmers meeting to discuss agricultural aspects and motivate farmers through different extension teaching methods

The students shall be given an opportunity to acquaint themselves with on-going programme and activities of research, development, marketing, extension agencies and organizations in the village.

The above data pertaining to all agricultural interventions are to be recorded regularly by the student duly verified by concerned course In-charge. The weekly data and observation notebook shall be incorporated in the record sheets. The students will prepare report of each activity and submit it for its evaluation.

B. KVKs/Research Station Activities and Attachment to the Agro-based Industries

I. Attachment with KVK's/RS

The students will be attached to nearby Krishi Vigyan Kendras and/or Research Stations of SAUs (State Agricultural Universities) or ICARs. The students shall be given an opportunity to acquaint themselves with the various research and extension activities/programmes of the KVK's/RS concerned and also the agro-climate zone in which it is located. The principles and methodologies involved in conducting different types of demonstrations/ experiments, collection and analysis of experimental data, maintenance of farm records etc., shall be explained to students by the resource person from KVK. While the students will work in laboratories of research centers and learn experimental techniques of research. The students shall maintain a record of the titles, objectives and outcome of each programme and must also record all the items of work either carried out by them or shown to them by the resource person.

II. Plant Clinic

In this component, the students will get training in basic and applied aspects of different branches of agriculture on the line of .1/Plant Doctor Concept" which has been introduced in the form of plant health clinic, where the graduates get training about the proper diagnosis and management of plant diseases, insect, pests, nutritional disorders, pollution effects and weeds etc. This training will be rendered by the teachers from the departments of Plant Pathology, Entomology, Agronomy, Soil Science, Horticulture and Vegetable crops, simultaneously. The students will identify nutrient deficiency and other physiological disorders in field crops, fruits and vegetable crops at laboratory and farmers field and suggest the remedial measures.

III. Internship of students with Agro Industries

The students shall be attached to anyone of the following for a period of three weeks

1. Seed production farms/Processing units
2. Pesticide Industries
3. Fertilizer industries
4. Commercial Nurseries of Horticulture/Forest Department
5. Agri-Clinic and Agri-Business Cell/Agro-Service Center
6. Biotechnological industries (Tissue Culture labs)
7. Fruit/Vegetable processing units
8. Agricultural finance institutions/Banks/Credit Societies etc.
9. Non-Government organizations related to agriculture and rural development.
10. Shekari dugdh Sangh

During this attachment period, the students are given an opportunity to acquaint themselves with the organizational set up, functioning, infrastructure available, records maintained and financial, technical and marketing aspects. The students must record all the items of work either carried out by them/shown to them during the period of attachment to the industry. At the end of the attachment period the students shall submit a project report which includes

all the aspects pertaining to the infrastructure's facilities, organizational set up, financial and technical aspects. In addition, the students shall also describe in their report the operational and market constraints/problems faced by the industry/company/organization. The students will prepare the report after completion of RAWE and AI. The proforma attached is indicative and it can be changed as per work done at respective KVKs/Ais.

PROFORMAS

Component – I: Rural Agricultural Work Experience (RAWE)

PROFORMA FOR DAILY DIARY OF STUDENT

(To be maintained by the student in ruled notebook)

Name of the student :

Enrolment No. :

Name of the College :

Name & address of the contact farmer :

Research Station / KVK :

Abstract of work :

Work days & Date	Abstract of work done	Signature & Designation of Visitors / Contact Farmer
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		
Saturday		
Sunday		

* Daily diary will be maintained in a separate ruled book Register showing work report on daily basis for each month of stay in the village.

Fortnightly Progress Report

Number of Fortnight		Date	Remarks about the performance	Signature of officers In charge
1				
2				
3				
4				
5				

Note: Fortnightly / Monthly verification will be done on the basis of daily diary.

WEATHER RECORD

Village:……

(If the data at the place is not available, the data of the research station can be given)

Month	Met. Week	Temperature		Humidity %		Rainfall (mm)	No. of rainy days
		Max ^{0}C	Min ^{0}C	Morning	Evening		

PATWARI RECORD OF THE VILLAGE (To be acquainted with)

1. Khasara
2. Khatauni
3. Zamabandi
4. Village Map

I. Survey of Village

VS-I: General Information

1. Name of village: …….
2. Tehsil: …….
3. District…….
4. Distance in Kilometers from the nearest:

a) Primary/Middle Scholl: …….
b) High School/ Higher Secondary/College: ……
c) Post Office: …….
d) Telegraph Office: …….
e) Railway Station: …….
f) Bus Stand: …….
g) Tehsil Place: …….
h) Krishi Upaj Mandi: …….

5. Transport facilities available in the village: ……
6. Nearest village (weekly) market:

a) Place: ……
b) Distance: ……

VS-II: Population of Village

S.No.	Item	Population as per Census
1.	Total Population	
2.	Total Male	
	1 Literate	
	2 Illiterate	
3.	Total Female	
	1 Literate	
	2 Illiterate	
4.	Number of Cultivators	
5.	Number of Agricultural Laborers	
	1 Male	
	2 Female	
6.	Other	
	Nos. of Scheduled Castes	
	Nos. of Scheduled Tribes	
	Nos. of Scheduled Backwards	

Note: Information of village population to be obtained from the Gram Panchayat Officer /Patwari

VS-III: Land use pattern of village

S.	o. Item	Area in hectares	% to total Geographical area
1.	Total Geographical area of Village		
2.	Area under forest		
3.	Barren and uncultivable land		
4.	Land put to non-agricultural use		
5.	Cultivable waste land		
6.	Total fallow land		
7.	Net area sown		
8.	Net irrigated area		
9.	Area sown more than once		
10.	Gross cropped area (S.No. 7+9)		
11. 1. 2. 3.	Area under Light soil (Depth upto one foot) Medium soil (Depth 1 to 2 ft) Heavy soil (Depth more than 2ft)		

Note: Information on land use pattern of the village to be obtained from the Patwari.

VS-IV: Irrigation facilities available in the village:

S.No	Source of Irrigation		Number	Area irrigated in Hectare	
				Seasonal	Perennial
1.	Total Wells				
	a)	Well in use			
	b)	Not in use			
2.	Canal				
3.	Tube wells				
4.	Tank				
5.	Other Sources (specify)				

VS-V: Implements and machinery available in village:

No	Particulars	Number
1.	Bullock drawn implements	
2.	Hand drawn implements	
3.	Tractors	
4.	Power thresher	
5.	Electric pump/oil engine	
6.	Sprayers	
7.	Dusters	

Note: Information on irrigation facilities and implements and machinery can be obtained from the Patwari and Village Development Officer (V.D.O) working in Gram Panchyat.

VS-VI: Cropping pattern of village (use data for current / latest year):

No.	Crop	Varieties grown	Area in hectares	Percentage to gross cropped area
1.	Soybean			
	a) Yellow			
	b) Black			
2.	Jowar			
	HYV			
	Local			
3.	Maize			
	HYV			
	Local			
4.	Cotton			
	a) HYV			
	b) BT			
	c)Other			
5.	Paddy			
	a) HYV			
	b) Improve			
	c) Other			
6.	Tur			
	a) HYV			
	b) Local			
7.	Moong			
	a) HYV			
	b) Local			
8.	Urid			
	a) HYV			
	b) Local			
9.	Wheat			
	a) HYV			
	b) Improve			
	c) Local			
10.	Gram			
	a) HYV			
	b) Local			
11.	Oilseeds (Safflower,			
	Groundnut, Sunflower,			
	Linseed, Seasmum, Nizer etc.			
12.	Other crops (Vegetables)			
13.	Gross cropped area of village			

Note: Data on Cropping Pattern of the village to be obtained from the village Patwari.

VS-VII: Wages rates prevalent in the village:

S.No	Period	Wages Rate (Rs.) per day			
		Man	Women	Bullock pair	Tractor/hr
	Kharif Season a) Sowing time b) Interculture c) Harvesting d) Threshing				
	Rabi Season a) Sowing time b) Interculture c) Harvesting d) Threshing				

Household Schedule (HS)

Information of Selected Cultivators

a) Name of the Farmer :…….

:…….

Caste

Village :…….

Tehsil…… District……..

Block

HS-I: Details about Family Members

S. No	Age	Education					Relation with head	Occupation	
		I	P	M	S	G		Main	Subsidary

IL - Illiterate, P - Primary Level, M - Middle Standard, S - Secondary Level, G- Graduate & above.

HS-II: Details about land possessed by the cultivator

S.No.	Particulars	Area (hectare)
1.	Total land area	
2.	Permanent fallow	
3.	Current fallow	
4.	Net sown area	
5.	Area under irrigation	
6.	Area sown more than once	
7.	Gross cropped area (4+6)	
8.	Approximate value of land (Rs./ha)	
9.	Total land revenue paid (Rs.) per year	
10.	Other taxes	

HS-III: Details of Livestock Position

S No.	Particulars	Type of Animal			Others
		Bullock Pairs	Milch Animal		
			Buffaloes	Cows	
1.	No. of animals				
2.	Age of animals				
3.	If purchased Year of purchase Price (Rs.)				
4.	If home bred Present Value (Rs.)				

HS-IV: Farm Machineries

S.No.	Name of Machine	Machine's make	Year and Purchase/price	Present value (Rs.)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

HS-V: Inventory of Residential and Farm Building

S.No.	Type of building	Year of constriction	Type of construction	Present value (Rs.)
1.	Type of building			
2.	Residential			
3.	Cattle Shed			
4.	Other Shed Storage			
5.	Irrigation Structures (Pump house)			
6.	Tractor shed			
7.	Others			

HS-VI: Financial Position of Farmer

(I) Dues payable (Liabilities)

S. No.	Particulars	Loan No.			
		I	II	III	IV
1.	Amount of loan				
2.	Date of borrowing				
3.	Source of loan				
4.	Purpose of loan				
5.	Amount of loan outstanding at the end of year				

(II) Dues Receivable

S.No.	Dues receivable from	Amount in Rs.
1.	Cultivator/Relatives	
2.	Traders	
3.	Aarhata	
4.	Other	

(III) Net Worth = Total Assets - Total Liabilities

Assets – HS- III, + HS -IV, HS-V Liabilities- HS-VII+II

HS-VII: Details of labour used for one important crop grown by the selected farmer:

I) Name of Crop…….. II) Area (ha)…….

S.No.	Name of Operation	Frequency of use	Human Labour				Bullock Labour				Machine Labour			
			Family		Hired		Owned		Hired		Owned		Hired	
			Hrs.	Val.	Hrs.	Val.	Hrs.	Val.	Hrs.	Val.	Hrs.	Val.	Hrs.	Val.
1.	Ploughing													
2.	Harrowing													
3.	Leveling													
4.	Manuring													
5.	Seed raising													
6.	Sowing/ Transplanting													
7.	Fertilizer application													
8.	Weeding													
9.	Hoeing													
10	Fertilizer application (Second dose)													
11.	Plant protection													
12.	Irrigation													
13.	Harvesting													
14.	Threshing and winnowing													
15.	Transportation of produce to home													
16.	Other operation													

HS-VIII: Details of Material used and Estimation of the cost of cultivation of one important crop grown by the selected farmer:
I) Name of the Crop…….. II) Area (ha)……

S.No	Particulars	Quantity Used	Price per unit	Total cost	Per cent to total cost
1.	Family labour Man (day) Woman (day)				
2.	Hired Human labour owned/Hire Male (day) Woman (day)				
3.	Bullock labour Pair (day) Owned Hired				
4.	Machine Labour Owned (Hrs.) Hired (Hrs.)				
5.	Seed (Kg)				
6.	Manures (Q.)				
7.	Fertilizer N P K				
8.	Insecticides				
9.	Irrigation charges (Rs.)				
10.	Land Revenue				
11.	Other taxes				
12.	**Total S. No. 2 to 11**				
13.	Interest on working capital on S.No.12 @10%				
14.	Rent paid for leased in land				
15.	Rental value of owned land prevailing rate in the village or 1/6th of the gross value of produce				

16	Interest on fixed capital @ of 10% per annum (Excluding land)				
	Total Cost (S. No. 12 to 16)				
	PRODUCTION Main produce (Q.) By produce (Q.)				
	Gross Income = (Value of M.P.+B.P.)				
	Net Income over				
	Net income over a) Cost A2 = GI-Cost A2 b) Cost B2 = GI-Cost B2 c) Cost C2 = GI-Cost C2 d) Cost C3 = GI-Cost C3				

Cost Concept:

Cost A1 = S.No. 2 to 13 (Except S. No. 12)

Cost A2 – Cost A1 + Rent paid for leased in land if any

Cost B1= Cost A1+ Interest on fixed capital (Excluding land value)

Cost B2 = Cost B1 + Rental value of owned land + rent paid for leased in land

Cost C1 = Cost B1 = Imputed value of family labour i.e. S. No. 1

Cost C2 = Cost B2 + Imputed value of family labour (i.e. S. No. 1)

Cost C3 = Cost C2 + 10% of Cost C2 (Treated as managerial cost)

Cost of Production Rs./q = (Total Cost – Value By Product) / (Yield/ha)

HS-IX: Crop Production Record

S. No.	Name of the crop with variety	Area (ha)	Quantity produced		Productivity per hectare
			Main product (Q)	By product (Q)	Main product (Q)
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					

HS-X: Disposal of Farm Produce

S.No	Name of the crop	Quantity Produced	Quantity Consumed	Quantity sold		
				Q	Price/Q	Total
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

HS-XI: Family Budget of the Farmer

S.No.	Item	Consumed during the year		Total Value	% of total
		Home Produced	Purchase		
I.	Cereals Jowar Wheat Rice Other				
II.	Pulses Tue Gram Mung Urid Other Pulses				
III.	Edible Oil Groundnut/Linseed/Til /Safflower Vegetable oil				
IV.	Non Vegetarian Mutton/Chicken Eggs Other				
V.	Milk and Milk Products Milk Ghee/Butter				
VI.	Condiments and Spices 1. Condiments 2. Chilies 3. Turmeric 4. Other				
VII.	Beverages 1. Tea 2. Coffee 3. Other				
IX.	Fuel and Light				
X.	Clothing and Footwear				
XI.	Education				
XII.	Medicine and Medical Services				
XIII.	Other				
	TOTAL				

Other Information Related to Village / District

1. Industry wise progress in Production and employment (Year.....)

S.No	Village industry	Production in Rs.	Employment in days
1.	Processing of cereals and pulses		
2.	Ghani Oil		
3.	Village leather		
4.	Cottage Match		
5.	Sugar Cane and Khandsari		
6.	Bee Keeping		
7.	Village pottery		
8.	Carpentry and block smithy		
9.	Lime manufacturing		
10.	Others		

2. Employment potential in forestry (Year… .....)

S. No	Head of Development	Employment (Man hours)
1.	Production forestry	
2.	Regeneration operation	
3.	Road construction	
4.	Social Forestry	
5.	Minor Forest Product	

3. Institutional Finance for Agricultural Development (Year… .....)

(A)

S. No	Particular	Amount (Rs.)
1.	Primary agril. Credit societies	
2.	Govt. loans	
3.	Commercial bank loans	
4.	RRB loans (Total Short-Term Credit)	

(B)

S. No	Particular	Amount (Rs.)
1.	Primary land Development bank	
2.	Commercial bank loans	
	Total Medium term & Long-term credit	
	Total Direct Credit (A+B)	

4. Prevailing Marketing Channel for cereals/pulses/oil seed/fruit and vegetable/ forests products

Sl. No.	Cereals	Pulses	Oil Seeds	Fruits	Vegetables	Forest Product

5. Number of cold storage prevailing in the district

S.No.	Year of Establishment	Commodity Store	Capacity (In tones)	Charges/per months

6. Rural employment generation schemes and other schemes in operation including tribal schemes

S.No	Name of Scheme	Beneficiaries (Nos.)

7. Details of minor irrigation projects

S.No	Name	Numbers	Area covered (ha)

8. Self Help Groups in the village/cluster

S.No	Name of SHG	Group of Person	Activity	Employment

Final Report on Socio-economic Study of Village/Farmer:

(This is to be based on the data collected by the student for the village and selected farmer. He should write at least one para on location, institutional facilities, population composition and cropping pattern of the village. Similar report for the selected farmer should also be prepared.)

Observations on Contact Farmers:

Students will record their observation on following aspects:- (Quantity, Nature, Use Pattern)

a) Resource base of the farmer
b) Technological Status of the farmer
c) Family budget and investment pattern of farmer
d) Marketing problems of the farmer
e) Constraints in adoption on technology
f) Farmers position against poverty line of Rs. 32,000/- per year per family. (Use separate sheet if space is insufficient)

Signature of Student

II: Agronomical Interventions

Form - I

Details of the Agricultural Operation Performed by the Host Farmers
(Some good photographs of important features can be attached)

Name of the host farmers ……
Village…… Block ……..……..
District …… Cropping Season(s) …….
Year ……..

Field No.	Field area (ha)	Crop(s) Variety(s) grown		Agronomic operation done by the farmer during crop production			
			Tillage	Seed rate, Sowing date seed treatment, sowing method etc.	Manuring and Fertilizer application	Weed control and inter culture operations	Irrigation and drainage
1	2	3	4	5	6	7	8

Agronomic operations done during crop				Actual Yield per ha	
After care / plant protection	Harvesting	Transportation to threshing floor	Threshing and winnowing	Main production (Grain/Tubers/ Green vegetable)	By-product (Straw/Stover/ Haulm)
9	10	11	12	13	14

Estimated value of the produce (Rs./ha)

Main produce	Main produce	Main produce	Estimated expenditure (Rs./ha)	Profit or loss (Rs./ha)
15	16	17	18	19

Remarks and Signature **Signature of Student** **Signature of Farmer**

Form - II

Details of the cropping programme proposed by the student to the Host Farmer (To be filled by the students as suggestions to the farmers)

Field No.	Field area (ha)	Crop(s) Variety(s) grown		Agronomic operation done by the farmer during crop production			
			Tillage	Seed rate, Sowing date seed treatment, sowing method etc.	Manuring and Fertilizer application	Weed control and inter culture operations	Irrigation and drainage
1	2	3	4	5	6	7	8

Agronomic operations done during crop				Actual Yield per ha	
After care / plant protection	Harvesting	Transportation to threshing floor	Threshing and winnowing	Main production (Grain/Tubers/ Green vegetable)	By-product (Straw/Stover/ Haulm)
9	10	11	12	13	14

Estimated value of the produce (Rs./ha)

Main produce	Main produce	Main produce	Estimated expenditure (Rs./ha)	Profit or loss (Rs./ha)
15	16	17	18	19

Remarks and Signature **Signature of Student** **Signature of Farmer**

Background Information of the Host Farmer

1. Name of the farmer :

(a) Total land owned by the farmer (ha) :

(b) Land suitable for cultivation (ha) :

(c) Land not suitable for cultivation :

(i) Farm Stead (ha) :

(ii) Waste land (ha) :

2. Soil Conditions **:**

i) Topography :

ii) Colour :

(iii) Texture :

(iv) Depth :

vFertility Status :

3. Rainfall of the district (Weekly) :

4. Irrigation facilities available on the field :

Irrigation source :

Water availability period :

Approximate irrigated area (ha) :

5. Drainage requirement :

6. Crop(s) / Variety (s) i.e. grown by the farmers

During kharif :

During rabi :

During summer :

7. Existing cropping systems practiced by the farmer

Cropped area during kharif :

Cropped area during rabi :

Cropped area during summer :

8. Use of seeds

Own seeds :

Seeds if purchased / Procured (Source/Agency) :

9. **Category of seed** used, if purchased :

11. Use of agro-inputs (Fertilizers/Manures/Herbicides/Insecticides/Fungicides/Others) etc. (quantity)

12. Adoption of cultivation practice by the farmer with reasoning

(i) Traditional practice :
(ii) Recommended practice :

13. Livestock / position in numbers :

(i) Bullock :
(ii) Cows :
(iii) He buffaloes :
(iv) She buffaloes :
(v) Goats :
(iv) Others :

14. Farm machinery and power

(i) Availability of electricity :
(ii) Tractor :
(iii) Trolley / bullock cart :
(iv) Plough :
(v) Harrow :
(vi) Leveler :
(vii) Seed drill :
(viii) Weeders :
(ix) Threshers / Winnowers :
(x) Chaff cutters :

15. Market facilities (Regulated/unregulated): (Mandi, Cold storage if any)

16. Transport facilities (Road, Railways):

17. Loan facilities

(Cooperative or commercial or private Banks, Government Agencies, Other sources) :

18. Technological facilities

Training Centres
Television/Radio
Public Library
KVK
Research Station
NGO

19. Calendar of the farm operation during the crop season / year. Calendar of agricultural operations done by the farmer*

S.No.	Day and Date	Name of the operation performed by the (Attach a separate sheet, if necessary)
1.	2	3
2.		
3.		

* Calendar should be maintained for the following :

(a) Land preparation :

(i) Number of ploughing / harrowing :

(ii) Leveling :

(iii) Soil and water conservation practices :
Practices / soil amendments

(iv) Any practice to facilitate :
(irrigation/drainage)

(b) Seed and sowing

(i) Seed treatment / seed inoculation :

(ii) Raising of nursery, if needed :

(iii) Seed rate

(iv) Method of nursery raising :
(Sowing, Fertilizer Application :
Irrigation, after care), if needed

(v) Date of sowing / transplanting :

(vi) Method of sowing of Transplanting :
(if applicable)

(vii) Date of sowing / transplanting :
Plant population etc.

(viii) Thinning / gap filling :

(ix) Bird watching / aftercare after seeding
:

(c) Fertilizer application

(i) Application of organic manures :

(ii) Application of fertilizers :

(iii) Method and time of manure and fertilizer application :

(iv) Any other information pertaining to nutrient management :

(d) After care **:**

(i) Weed control :

(ii) Intercultural

iii) Manual / cultural :

(iv) Mechanical / Chemical weed control measures, if any :

(v) Special cultural operations, if any:

(vi) Any other information like earthening :

stacking, wrapping, nipping etc.

(e) Irrigation

(i) Time of irrigation (s) :

(ii) Drainage, if done :

(f) Plant protection

(i) Time and stage of the occurrence: of
the pests / diseases

(ii) Severity of the pest / diseases :

(iii) Extent of damage caused :

(g) Control measures adopted for the control of insects pest / diseases

(i) Type of sprayer / no…..... used by farmers:

(ii) Insecticides pesticides used, dose and frequency of application :

(iii) Any other information like bird watching etc. :

(h) Harvesting, threshing and processing

(i) Date of harvesting and duration :

(ii) Transportation to threshing floor :

(iii) Threshing (manual / animal / machinery):

(iv) Winnowing (method, time) :

(v) Storage, processing, marketing facilities:

(vi) Any other work :

Summary of the work by the student done on the farmer's field:
(Attach separate sheet of paper, if necessary)

Suggestions to farmers for future work
(Attach separate sheet)

Signature of Student **Signature of Officer In-charge**

III. Plant Protection Interventions

(A). Entomology

Identification of Important Insect pests of at least two major crops cultivated in village.

1. Name of Crop
2. Name of insects identified in the field

S.No.	Common Name	Local Name	Scientific Name	Systematic position
1.				
2.				
3.				
4.				
5.				

1. Principle symptoms of pest damage

S.No.	Early growth stage	Vegetative Stage	Flowering / pod / earhead	Grain etc.
1.				
2.				
3.				
4.				
5.				

2. Intensity of pest attack and degree of infestation (Pest wise)

Nil	
Low	
Medium	
High	
Epidemic	

3. Collection of major insect-pests and predatory insects in the field

S.No.	Name of Insects	Stages				
		Egg	Larval	Pupa	Nymph	Adult
1.						
2.						
3.						

4. Methods of Control adopted: (2 major crops) (Crop wise at different times)

S.No.	Name of Insects	Non-chemical methods	Cultural methods	Mechanical/ physical methods
1.				
2.				
3.				

5. Chemical Control:

Pest attack	Farmers Practices				Recommended practices			
	Name of Insecticides	Doses	Type of sprayers /Duster	Stages of crop	Name of Insecticides	Doses	Type of sprayer /Duster	Stages of crop

(i) Commonly available insecticides in the village / local market:
(ii) Precautions observed while using insecticides:
(iii) Methods of preparation of insecticidal solution:
(iv) Method of calibration of machines (sprayer / duster):

6. Rodent management in field as well as in House / Storage (As per recommended practice)

Farmers Practices					Recommended Practices				
Strategies		Field		Storage	Strategies		Field		Storage
Tapping	Poison Baiting	Crop stage	Dose	Dose	Tapping	Poison Baiting	Crop Stage	Dose	Dose

7. Suggestion for proper storage of food grains.

S.No.	Name of Food Grain	Moisture Content	Fungicide / Fumigant Treatment	Dose
1.	For Human			
2.	For storage purpose			

8. Documentation of indigenous technology knowledge (ITK) of pest management practices in the village along with photographs.

Signature of Student

B. Plant Pathology

The following assignments have to be completed by Group (Batch) / Individual students during their stay in adopted Villages under RA WE programme.

I. Herbarium Collection

Each student has to submit at least 15 plant disease species specimens properly pressed / dried and labeled in file cover by giving following information.

1. Name of crop / variety	2. Name of Disease
3. Name of the casual organism	4. Locality / place / Name
5. Date of collection	6. Collected by

II. Demonstration of disease management technology

To be done by each batch of students in 0.5 (Half) acre area:

A. Seed treatment in 1. Gram, 2. Wheat, 3. Potato, 4. Seasonal vegetable (any two)

1. Gram:

(a) Bio agent (*Trichoderma*) @ 5g/kg seed

(b) Thiram + Carbendazim (2:1) 3 g/kg seed

(c) Control without treatment

2. Wheat:

(a) Carboxin @ 2.5 g/kg seed

(b) Control without any treatment

3. Potato:

(a) 0.5% (5g/liter) Mancozeb solution for 30 minutes

(b) Control without any treatment

B. Demonstration on foliar spray of fungicides: supported by Field photograph in paddy/soybean/potato/pea/chilies/mustard/lentil/tomato etc. Optional (any two).

For Powdery mildew - Sulphur(35 EC) @3g/liter water.

For Leaf spots / Blights (early / late) Mancozeb @3g/liter water.

For Downy mildew / white rust: Copper Oxychloride (Fytolan or Blue Copper) @3g/L water.

4. Soybean:

Thiram +Carbendazim (2:1) 3g/kg seed for seed & seedling diseases For YMV prone areas: Thiamethoxam 3g/kg seed

Foliar diseases: Control

Spray of carbendazim 1 g/L after 30 and 45 days after sowing.

5. **Paddy:**

Seed treatment:

Carbendazim 1 g +
Streptocycline 0.25 g
Per kg/L
Before transplanting

Seed treatment
or
Seedling drip (30 ml)

Blast:

Carbendazim 1-1.5 g/L water (with sticker or soap)

Bacterial blight:

Spray Streptocycline (Pausamycine, Agrimycine 100 etc.)
2.5-3.0 g/10 L of water with sticker
(Repeat in case cloudy/raining after 7 days)

Smut/bunt:

Propiconazole 1 ml/litre spray during flowering stage.

IV. Survey of Plant Disease:

Each student has to submit duly filled proforma (as per manual/booklet) of least five commonly occurring diseases from 4-5 location/field i.e. 20 - 25 proforma. For example: brown spot/blast of paddy, yellow mosaic, blights of soybean, loose smut of wheat, wilt/root rot/collar rot of gram, powdery mildew of pea - cucurbits and disease of other crops/vegetables.

Each student will prepare a "Practical Record" giving details of above work duly verified by Station I/c Course teacher and submit the same at the Semester end.

Signature of Student **Signature of Officer In-charge**

IV. Soil Improvement Interventions (Soil Sampling and Testing)

Students have to test soil samples in respective Krishi Vigyan Kendra, for which the information should be collected according to the given format:

Information Sheet for Soil Testing

1. Full address of Farmer
2. Sample number
3. Number of soil samples
4. Date of soil sampling
5. Field name (Khasara number etc.)
6. Whether the field is irrigated or not
7. Source of irrigation
8. Nature of field i.e. sloppy, depression, stony etc.:
9 Crop rotation :
10 Name of crops to be sown :
11. Amount and nature of fertilizer applied to the previous crop:
12. Visual nutrient deficiency, if any
13. Water infiltration rate
14. Water logging problem, if any
15. Any other

Preparation of Soil Health Card

Detail Information of Farmer

- Name
- Address
- Village
- Tehsil
- District
- Aadhar Number
- Mobile Number

Details of Soil Sample

- Soil Sample Number
- Date of Soil Collection
- Khasra Number
- GPS:
  - Longitude
  - Latitude
- Irrigated Soil/Rainfed Soil

Result of Soil Testing

S.No.	Parameter	Value	Analysis	Remarks
1.	pH			
2.	EC			
3.	Organic Carbon			
4.	Available Nitrogen			
5.	Available Phosphorus			
6.	Available Potassium			
7.	Available Sulphur			
8.	Available Zinc			
9.	Available Boron			
10.	Available Iron			
11.	Available Manganese			
12.	Available Copper			

Recommendations for application of Micro nutrients		
S.No.	**Parameter**	**Recommendations for soil application**
1.	Sulphur (S)	Gypsum (18%)
2.	Zinc (Zn)	Zink Sulphate (21%): **25 Kg./ha**
3.	Boron (B)	Borex (10%)
4.	Iron (Fe)	Ferrous Sulphate (19%)
5.	Manganese (Mn)	Maganesium Sulphate (30.5%)
6.	Copper (Cu)	Copper Sulphate (24%)
General Recommendations		
1.	Organic Manure	**5 tonnes/ ha**
2.	Bio-fertilizer	
3.	Gypsum	

Integrated Nutrient Management for Major Crops

S. No.	Crop	Nutrients ($N:P_2O_5:K_2O$) kg/ha	Fertilizers (kg/ha)			
			Urea	SSP	MoP	DAP
1.	Rice	120:60:40	261	375	67	0
			210	0	67	130
2.	Maize	180:60:40	391	375	67	0
			340	0	67	130
3	Soybean	20:80:20	43	500	33	0
			0	0	33	174
4.	Wheat	120:60:40	217	375	67	0
			210	0	67	130
5.	Chickpea	20:50:20	43	313	33	0
			0	0	33	109
6.	Sugarcane	300:80:60	652	500	100	0
			584	0	100	174
7.	Mustard	80:40:20	174	250	33	0
			140	0	33	87
8.	Pigeonpea	30:60:40	65	375	67	0
			14	0	67	130
9.	Jawar	80:40:40	174	250	67	0
			140	0	67	87
10.	Hybrid Bajra	120:60:50	261	375	83	0
			210	0	83	130

- Application of FYM @ 5 t/ha reduces the requirement of Urea, SSP and MoP by 54, 63 and 42 kg/ha, respectively from given doses of fertilizers for different crops.

- Seed treatment by crop specific Rhizobium in legumes and Azotobactor/ Azospirillum in non-legume crops @ 5.0 g/kg seed and PSB @ 3.0 kg/ha as soil application for all crops is recommended.

- In case Zinc deficiency, application of Zinc Sulphate @ 25 kg/ha on alternate year is advised.

- In case of sulphur deficiency, application of S @ 40 kg/ha per year or continuous application of SSP instead of DAP is advised.

Objective and advantage of soil testing:

Objectives:

1.
2.
3.
4.
5.

Advantages:

1.
2.
3.
4.
5.

Importance of Micronutrients in Crop Production

1. Zinc
2. Copper
3. Iron
4. Manganese
5. Boron
6. Chloride
7. Molybdenum

Reclamation of soil salinity, alkalinity and acidity

1. Soil salinity…….
2. Soil alkalinity……
3. Soil acidity……..

Natural resource management (NRM)

(a) Role of Bio fertilizer in improving soil health

1.
2.
3.
4.

(b) Role of Vermi compost in improving soil health

1.
2.
3.
4.

(c) Role of Green manure in improving soil health

1.
2.
3.
4.

(d) Soil degradation, improvement of soil health for sustainable agriculture
Reasons:
1.
2.
3.
4.

Improvement:
1.
2.
3.
4.

(e) Role of Quality control in fertilizer 1.
2.
3.
4.

(f) Water management for soil improvement 1.
2.
3.
4.
(g) Role of Crop rotation in soil improvement 1.
2.
3.
4.

Signature of Student **Signature of Officer In-charge**

V. Fruit and Vegetable Production Interventions

A. FRUIT PRODUCTION

Details of existing fruit trees:

(Period of the Scheme:.....)

1. Name of Village/Block/District
2. Name of the Farmer
3. Plot No. Crop & Crop Variety Area (ha)/No. of trees

i.
ii.
iii.
iv.
v.

Crop-wise details shall be given under following heads

4 Manures/Fertilizers applied Time Quantity

5 Fruit crops / intercrop

Area

Inter-crop taken (name of the crop season) Crop Plant population m^2

6. Actual yield obtained

i)	Fruit Crop	Area	Quality	Amount (Rate/kg)
ii)	Inter Crop			

7. Yield per ha/per tree
8. Cultivation Problems
9. Income in Rs.

Fruit Crops

Inter Crops

10. Net Expenditure Rs. per ha per tree
11. Mode of transport and sale of the produce
12. Status of production technology
13. Suggestions if any
14. Total area cultivated
15. Irrigated area
16. Area in fallow
17. Area under fruit/horticultural crop
18. Net profit per ha per tree

Signature of Student

PLOT HISTORY

(Two important Fruit Crops)

1. Name of Student:
2. Name of Research Station/KVK to which attached:
3. Name of farmer:
4. Topography:
5. Soil type & drainage:
6. Irrigation source and irrigated area:

Well/Canal/River/Nala/Rainfed potential available (Hours per day & area covered)

7. Trees planted with area and number:
8. Quality of planting material, method of planting:
9. Present survival of trees with age & condition of plants:
10. Remarks (Inter crops grown in the plot in the past):
11. Per cent of total area under horticultural corps:
12.

Area	**Crop**	**Variety**	Number of Trees
PI			
PII			

Problems faced and techniques adopted to overcome.

Signature of Inspecting Officer **Signature of Student**

CALENDAR OF OPERATIONS

Name of Crop and No. of trees ……..…….Period of Report ……..

S.No.	**Date**	**Operation done & trees covered**		**Details of plant material used**
		Plot –I	**Plot –II**	
1.				
2.				
3.				
4.				
5.				

Operational Labour Cost (Rs)……

(only two plots)

Particular	Owned	Hired	Bullock Pair	Tractor machinery
Ploughing / harrowing				
Digging/Planting				
Manuring /Fertilizers				
Weeding				
Irrigation				
Triming and pruning				
Spraying				
Harvesting & Grading				
Transport				

Total Cost on Labour (Rs.) ……..

Material Cost

S.No.	Particulars	Number		Value (Rs.)		Remarks
		Plot-1	Plot-2	Plot-1	Plot-2	
1.	Plant Material Seedling Layers / Grafts					
2.	Manures/Fertilizers					
3.	Irrigation					
4.	Hormone & Plant protection Chemicals					
5.	Staking cost					
6.	Packaging Material					
7.	Cultivation problem/ other problems identified					

Total cost of material (Rs.): ……

COST OF FARM PRODUCE (YEAR WISE)

1. Name of Crop, Number & Age of Trees
2. Crop Variety
3. Date of flowering & harvest
4. Production (kg) and income
   Per tree
   Rs. Per ha
5. Price of Produce Rs.
6. Demonstration by student on:

(a) Propagational studies

(b) Special Horticultural Practices

(c) Special problem & demonstration of solution (Training, Prunning, Bahar treatment, Manuring etc.)

(d) Plantation of fruit trees-Demonstration & Plantation of at least 5 fruit trees

(e) Grading and Packing

(f) Storage – Zero Energy Chamber

Note: Detailed note on above shall be written.

Signature of Student

B. VEGETABLE PRODUCTION

Cropping Scheme for Vegetables (period of reports)

Plot No.	**Crop variety**	**Area (ha)**
i.	Brinjal	
i.	Potato / Tomato	
iii.	Onion/Garlic	
iv.	Cabbage /Cauliflower	
v.	Chillies/Coriander/Fenugreek	
vi.	Other	

Nutrient Application:

	Time	**Quality**	**Rate**	**Value**
Manure applied				
Fertilizer applied				
Green manure used				

Intercrop taken: Crop Area

Kharif -

Rabi -

Summer -

-

Actual yield obtained: Quantity (No./Q) Rate Rs. Value Rs.

Main vegetable

Inter crops

5. Yield per ha (Quintal /No.)

Main crops

Inter crops

Estimated cost: Main crop:

Gross Income in Rs. (value) Inter crop:

Net Income Rs. (value) per plot per ha

Cost/ Benefit ratio per plot per ha

PLOT HISTORY (two important crops)

		Field –I	Field –II
Name of Student	:		
Name of institute to which attached :			
Name of farmer	:		
Topography	:		
Soil type with drainage	:		
6. Well/Canal/River/Water: irrigation : with potential available (hours/day & area covered)			
Crops grown in last year			
Plot No., Survey No. and area in ha:			
Crops now grown with Plot No. Survey No. and area (ha) planted or proposed			
Remarks			

Signature of Inspection Officer In-charge **Signature of Student**

Calendar of Operations

Period of report …….

Name of crop and area (ha) :…..……

S. No.	Date	Operation done and area covered		Details of labour /bullock, tractor & material used
		Field - I	Field - II	

Operational cost (Labour wages) one crop only

S.No	Particular	Owned M/F/B.P./ 1 2 3	Hired M/F/B.P./ 1 2 3	Hired Rate M/F/B.P./ 1 2 3	Machinery Hours	Tractor Rate
1.	Ploughing					
2.	Harrowing					
3.	Bed Preparation					
4.	Manuring					
5.	Sowing/Planning					
6.	Fertilizers					
7.	Irrigation					
8. 9.	Weeding Training Staking Spraying Earthing Dusting Harvesting Grading Packing Watching					
10.	Transport to market					

M - Male, F - Female, B.P. - Bullock Power

Total Income **Net Profit**

Signature of Student **Signature of Farmer** **Signature of Officer In-charge**

Farm production cost (year …….……to…..) (at least one crop)

Name of Crops

Variety

Date of Flowering Date of Harvest

Production (Quintal)

Rate (Rs.)

Value of Produce (Rs.)

Material Cost (Area)

S.No.	Particulars	Quantity		Value		Remarks
		Crop-I	Crop II	Crop-I	Crop II	
1.	Seed/Seedling Plant					
2.	F.Y.M./ Oil cake / Fertilizer					
a)						
b)						
c)						
3.	Total No. Irrigation Season					
	Irrigation Charges					
4.	Hormonal spray and plant protection charges					
	Cost of chemical					
5.	Stake cost					
6.	Packaging/Charge (Boxes or tokni) for hybrid tomato only					
	Total cost of material					

Remarks by student on:

Vegetable Nursery raising (Crop .....)

Site selection & Nursery bed preparation

Nursery area required for one hectare

Seed rate required for different Vegetable crops Seed and

soil treatment

Type of Nursery bed raised/flat/sunken bed

After care

Economics of Nursery raising for one hectare

Quantity & quality of certified /TL seed saved by the farmer from the previous crops (Seed Production Technology)

Special Horticultural Practices to boost vegetable production

Hot water treatment of Cole crop seed for control of Black rot (Bacterial) disease.

Potato tuber seed treatment.

Use of herbicides in weed control in vegetables.

Special method of raising cucurbits seedling & for early planting in spring-summers season.

Staking for hybrid tomato.

Use of plant growth regulators MH, Ethereal for increasing fruit set, in cucurbits.

Identification of production problems of major commercialized vegetables.

Control of major insect, pests and diseases.

Economics of vegetable production.

Layout of kitchen garden to get vegetable throughout the year.

Crops for kitchen garden with suitable rotation.

Signature of Student

Submission of brief write up by student on work done including special practices for boost up vegetable production.

Signature of Student

Signature of Officer In-charge

VI. Food Processing and Storage Interventions

Students shall involve themselves to study and collect the information i.e. methods of food processing and preservation, Importance of processing of fruits and vegetables, spices, condiments and flowers, Packaging of horticultural commodities, Common methods of storage, Post-harvest management and equipment for spices and flowers, Quality control in Fruit and vegetable processing industry, Storage structure and methods of grain storage, Traditional and modern storage structures, Indigenous Technological Knowledge used for food storage.

Food processing methods that are used by farmer to preserve foods:

S.No.	Method	Material used (Cereals/Pulses/Vegetable/Fruits)
1.	Refrigeration and freezing	
2.	Canning	
3.	Irradiation	
4.	Dehydration	
5.	Freeze-drying	
6.	Pickling	
7.	Pasteurizing	
8.	Fermentation	

Procedures for fruit and vegetable preservation

Procedures	Practical applications (Fruits/Vegetables etc.)
Fresh storage	
Cold storage	
Freezing	
Drying/dehydration	
Concentration	
Chemical preservation	
Preservation with sugar	
Pasteurization	
Sterilization	

Packaging material Used for horticultural crops:

Students have to collect the information regarding the packaging material used for vegetables, fruits and other material at village level.

Natural material i.e. wood, bamboo, straw and synthetic bags, sacks, cardboards, plastic container, crates, etc.

S.No.	Name of article	Packaging material used
1.		
2.		
3.		
4.		
5.		

Storage Interventions

1. Grain contamination is influenced by

a. Type of storage structure……

b. Temperature……

c. pH……

d. Moisture……

2. Storage losses in grains (%)

a. Type of structure used…….

b. Length and purpose of storage……

c. Grain treatment……

d. Pre storage practices……

3. What are the insects that are seen during storage

S.No.	Name of Crop	Insect pests observed during storage
1.	Paddy	
2.	Wheat	
3.	Maize	
4.	Groundnut	
5.	Pulses	
6.	Coriander	
7.	Other Crop	

4. Name of the structure used for grain storage :

Outdoor structures

1. Name
2. Quantity stored.....
3. Materials used for construction of the storage structure.....
    a. Any innovative practice that the farmer has evolved/ demesnes.....
    b. Problem observed by farm in storage shape of the structure.....
4. Traditional or modern method.....
5. Fumigation practices.....
6. Time schedule.....
7. Inter opening.....

5. Control Measures adopted by Farmers for Storage pest & Rodent

S.No.	Name of Insect	Control Measures
1.	Beetles	
2.	Weevils	
3.	Moth	
4.	Other	

6. Type of control measure used for Rodents by farmers

(Kindly □ the method used by the farmers of the locality)

a. Fumigant aluminum phosphide □
b. Rodent rat cases □
c. Poison baits □
d. Rat borrow fumigation □

7. Storage Structure used by the farmers of the locality

a. Kothi/Banda □
b. PAU Bin (capacity 1-5 to 15 quintal)
c. Pusa Bin (made from mud and bricks polythene) □
d. Cylindrical rubberized cloth structure □
e. CAP storage (cover and plinth) □
f. Silo □
g. Large scale storage □
h. Other (Specify) □

8. Student have to write at least two indigenous practices used for safe grain storage adopted at village

i)

ii)

Signature of Student **Signature of Officer In-charge**

VII. Animal Production Interventions

Information of Livestock

Particulars	Strength of livestock	Name of the Breed
Cow class		
1. Adult cows		
Milking		
Dry		
2. Heifers		
3. Breeding bulls		
4. Bullocks		
Buffalo class		
1. Adult Buffaloes		
Milking		
Dry		
3. Heifers		
4. Bulls		
Sheep		
1. Young stock		
2. Adult stock		
3. Adult rams		
4. Adult ewe		
Goat		
1. Young stock		
2. Adult stock		
3. Adult bucks		
4. Adult doe		
Poultry/ Pig/ Fish		
1. No. of chicks/piglets/fingerlings		
2. No. of layers/broilers/boar/sow		
Cost Structure	**Amount (Rs.)**	**Remarks**
1. Cost of animals (if purchased)		
2. Cost of dairy structure and paddocks		
3. Total cost of dairy structures		

Daily maintenance and feeding expenses

Particulars	Cow		Buffaloes		Sheep/Goats		Poultry	
	Qty.	Amt (Rs.)	Qty.	Amt (Rs.)	Qty.	Amt (Rs.)	Qty.	Amt (Rs.)
Labour male/female requirement								
Concentrates (kg)								
Green roughages (kg)								
Dry roughages (kg)								
Mineral mixtures (kg)								
Veterinary aids including breeding								
Total expenses per day								

Daily Milk Production and Disposal Record

(A) Milk Production

Date	No. of animals in milk				Milk Produced (L)				Total Milk Produced (L)
	Cow	Buffalo	Sheep	Goat	Cow	Buffalo	Sheep	Goat	

(B) Milk Disposal (L)

Date	Home consumption (Cow/Buffalo/ Sheep/Goat) Whole milk /Milk products	Utilized for making Products (Cow/Buffalo/ Sheep/Goat Ghee/ butter/Khoa/ Curd/Others	Sale (raw milk) (Cow/Buffalo/ Sheep/Goat)	Name of Agency to which sold	Income (Rs.) Rate of Dairy Milk/Unions/ Milk Vendors

Daily Production and Disposal Record

(A) Dairy Products

Date	Name of the Dairy products	Quantity of dairy products (Kg)	Quantity sold (Kg)	Name of agency to which sold	Income (Rs.) Rate/kg.

(B) Eggs and Birds

Date	Breed/strains of Birds and system of keeping /rearing	Production of		Home consumption		Disposal of		Name of agency to which sold	Income (Rs.)
		Eggs	Birds/ Chicks	Eggs	Birds/ Meat	Eggs	Birds		

(C) Pig

Date	Breed & system of keeping/rearing	Production of Animals/Piglets	Disposal of Animals	Name of agency to which sold	Income (Rs.)

(D) Any Other Animals / Birds

Date	Species/Breed & system of keeping /rearing	Production of		Home consumption		Disposal of		Name of agency to which sold	Income (Rs.)
		Eggs	Birds/ Chicks	Eggs	Birds/ Meat	Eggs	Birds		

Yearly Production and Disposal Record

Particulars	Amount (Rs.)
A) Total production of – 1. Animals 2. Milk and milk product 3. Dung/F.Y.M. 4. Eggs 5. Poultry Birds/Chicks 6. Wool 7. Meat	
B) Disposal of – 1. Animals 2. Milk and milk product 3. Dung/F.Y.M. 4. Eggs 5. Poultry Birds 6. Wool	
C) Yearly income from the sale of 1. Animals 2. Milk and milk product 3. Cowdung / F.Y.M. 4. Eggs 5. Poultry Birds 6. Wool	
Total income (Rs.)	

Yearly Receipt and Expenditure Statement

Particulars Amount (Rs.)	
A) Receipt - * Total income obtained from the sale.	
B) Expenditure- 1. Cost of feeds and fodder 2. Labour cost 3. Expenditure on land revenue, energy charges etc. 4. Medicines & Vaccines (Veterinary Aids) Total expenditure	
C) Net profit (per year)	

* Crop production record should be used from Agronomy Proforma.

FINAL REPORT:

1. Brief note on work done on specific practices suggested by the students-

Cow/buffalo/ others/crossbred cow

(a) Sanitation of sheds and Design & house/Pattern adopted eg. Cage housing in layers.

(b) Balanced ration

i. Concentrate mixture

ii. Green roughage

iii. Dry roughage

(c) Full hand milking practice
(d) First aid given
(e) Vaccination to R.P., H.S., B.Q. and F.M.D. & Poultry vaccination
(f) Care of pregnant animal
(g) Care of calves
(h) Care of buffalo, if any
(i) Care of bullocks
(j) Some important management practices
like grooming, clipping, stoppage of bad habits/vices like sucking of own milk, licking of own calf.
(k) Visit of cattle show if any

(1) Maintenance of Pedigree records

(2) Analysis of work and receptivity of the farmer for improved dairy practices

(3) Remarks by farmer

Signature of Student

Signature of Officer In-charge

VIII. Extension and Transfer of Technology Activities

Study of development programme and activities of various agriculture and rural development programme, extension agencies or organization.

Project –1: Identifying problems of farmers:

For identifying the problems of the farmer, it is proposed to collect the information from individual farmers. The students will contact the farmers and collect the information in the schedule for identifying the specific and general agriculture problems.

1. **Name of the farmer**:

2. **Village**:

3. Age:

4. **Education**:

5. **Total members in family**:

Men …….. Women …….. Children ……..

6. **Total area of land owned** (in ha)

Dry …….. Irrigated …….. Fallow ……..

7. **Sources of information used by farmers**:

I. How do you obtain the latest information about agricultural technology?

II. On which topics you feel that you are not getting information?

III. Do you regularly obtain farm information from the RAEO?

IV. How many times you met the RAEO?

V. Do you contact University Experts for obtaining information about agricultural technology?

VI. Do you regularly listen to the 'Krishiwani' and other similar programmes of All India Radio?

VII. Are you a subscriber of 'News Paper / Krishak Jagat / Krishi Vishwa' or other similar agricultural magazine?

VIII. How do you keep yourself update about the new agricultural technology to be adopted on your farms?

8. **Adoption of farm technology**:

The student is expected to collect the information about the adoption of recommended farm technology related to major crops.

S.No	Technology Adopted	Name of Crops/ varieties
1.	Improved varieties	
2.	Seed treatment	
3.	Recommended doses of fertilizer	
4.	Irrigation method	
5.	Use of Weedicides	
6.	Insecticide	

9. **Identifying specific gaps in adoption**:

The student is expected to fill in this sheet about one important cereal, cash and oil seed / pulse crop grown by the farmer. The recommended practices may be based on the information collected from the research recommendation of the Department of Agriculture / Agriculture University. As regards the information with respect to the practices followed by the farmers, the information collected by student under Agronomy and Agriculture Economics may be used.

S.No.	Recommended practices	Practices followed by farmers	Extent of gap in adoption of recommended technology	Constraints in adopting recommended practices	Action oriented suggestions
1.					
2.					
3.					

10. After collecting the information in the schedule the student should record his observations in the following proforma.

S.No.	Agricultural problems identified	Action oriented suggestions for solving the problems
1.		
2.		
3.		

Activity 2: Organizing Method Demonstration (Jointly)

A method demonstration is a short time demonstration given before a group to show how to carry out an entirely new practice or an old practice in a better way.

Three students should organize a method demonstration collectively on the farmer's field and record their observation with the help of the schedule.

1. Topic of demonstration:
2. Place of demonstration:
3. How the topic was decided?
4. What equipments and materials were there on spot before starting the demonstration?
1. How publicity was given to the demonstration?
2. How were the physical arrangements for the audience on the demonstration?
3. What steps were followed while conducting the actual demonstration?
4. How many people were present and how many were given opportunity to practice the skill ?
5. Whether names of the participants and list of those who contemplate the adoption of the practices were prepared for follow up?
6. Your suggestions for improving the effectiveness of the demonstration.

Activity 3: Organizing Field Visits with Farmers (Jointly)

It is a method by which a group gets together for the purpose of seeing an improved performance or result of practice in actual situations. This requires the group to move out of the area for a considerable period with a pre decided programme.

A field visit will be organized and the students will record their observations with the help of the schedule.

1. Place of visit :
2. Purpose of visit :
3. Whether the places to be visited and the things to be seen and learnt were decided before starting the visit?
4. What methods were used to publicize the programme of visit?
5. Whether the date, period, transport, food and other related matters with the visit were properly planned?
6. How many farmers participated in the visit? Whether they were informed about the visit?
7. Which problems of farmers were identified in the field visit?
8. Which solutions were offered for these problems?
9. Whether sufficient time was allowed for questions and answers?
10. What interesting information was noted during visit?
11. Your suggestions for improving the effectiveness of the visit.

Activity 4: Studying Ongoing Extension Programme in Village

There are number of extension programmes undertaken by various agencies in the village. These programmes may be field visits, demonstrations, family planning work, training camps and so on. The student will select extensions programme and study it on the aspects given below:

1. Name of ongoing extension programme you have studied.

2. What were the objectives of the programme?

(i)
(ii)
(iii)

3. What activities were undertaken to attain these objectives; state objectives?

(i)
(ii)
(iii)
(iv)

4. How far the targets were achieved? State objective wise.

(i)
(ii)
(iii)
(iv)

5. What difficulties were faced by the executors of programme?

(i)
(ii)
(iii)

6. What efforts were made by them to overcome these difficulties?

(i)
(ii)
(iii)

7. Your own remarks on achievements of the extension programme.

Activity 5: Participation in Village Social Service Activity

The student shall participate in any one of the social service activities already existing in the village. If the activity is not in existence the students will select any one social service activity from the following activities, initiate it in the village with the involvement of people, and evaluate the same and record observations in the schedule.

Social service activities

(i) Tree planting in a village
(ii) Cleaning of village
(iii) Participation in Blood Donation Camp
(iv) Participation in Health Care Camp
(v) Participation in Animal Care Camp
(vi) Use of Bleaching powder in drinking water
(vii) Adult education
(viii) Giving information about the importance of cleanliness of teeth, clothes etc.
(ix) Establishing a library in village
(x) Organizing games and sports
(xi) Organizing social service clubs
(xii) Providing agricultural information through Bulletins
(xiii) Providing agricultural information through charts, graphs and samples
(xiv) Repairing village roads
(xv) Cleaning drainage channels
(xvi) Construction of soak pits
(xvii) Social Forestry
(xviii) Recreation clubs
(xix) Bhajan Mandals

1. Name of the social service activity, place and date
2. Who organized it?
3. When was it organized?
4. Object of activity
5. At what stage did you participated?
6. What was the nature of your participation in the activity?
7. Was it in the line with object of work?
8. Who were the other participants?
9. Your remarks and suggestions (a brief write up on the work done by the student)

Proforma for Case Study of Rural Development / Agricultural Development Programmes

1. Name of Programme: ……..
2. Name of Beneficiary: ……..……..……..
Village: ……Block……. District: ……..……
3. Who informed about the programme?
4. Date of participation in the programme:
5. Support of the Programme:

Cash

a)
b)
c)

Kind

a)
b)
c)

6. Subsidies Availed:
7. Achievements of the Programme :

a)
b)
c)

8. Problems faced:

a)
b)
c)

9. Suggestions for Improvement:

a)
b)
c)

10. An overview of the Programme :

a)
b)
c)

(Benefits, opinion of the beneficiaries and your own comments on organization and implementation)

Signature of Officer In-Charge **Signature of Student**

Activity 6: Poverty Alleviation Programmes (Perception and Evaluation)

The students during their stay in the village will have an overview of the Poverty Alleviation and Agricultural Development Programmes implemented by various agencies. They should have clear-cut perception of the incidence and causes of poverty among the villagers. The case study of beneficiaries out of the following programmes will be necessary as per profroma appended.

(A) Agricultural Development Programmes

1. Intensive Agricultural Districts Programme (IADP)
2. High Yielding Varieties Programme (HYVP)
3. Watershed Development Programme (WOP)
4. National Agricultural Technology Project (NATP)
5. Agriculture Technology & Management Agency (ATMA)
6. Jal Dhara
7. Pulse Development Programme
8. Training and Visit System (T & V System)
9. Biogas Plants
10. National Horticulture Mission (NHM)

(B) Poverty Alleviation Programmes

1. District Poverty Initiative Programme (DPIP)
2. Integrated Tribal Development Agency (ITDA)
3. Integrated Rural Development Programme (IRDP)
4. Swarnjayanti Gram Swarojgar Yojna (SGSY)
5. Mahatma Gandhi National Gramin Rojgar Yojna
6. Indra Awas Yojna (lAY)
7. Prime Minister Employment Yojna (PMEY)
8. Panchyatiraj System
9. Madhya Pradesh Rural Livelihood Project (MPRLP)

(C) Women development Programme

1. Integrated Child Development Scheme (ICDS)
2. Rastriya Mahila Kosh (RMK)
3. Mahila Samridhi Yojna (MSY)
4. Madhya Pradesh ,Women in Agriculture
5. Mahatma Gandhi National Gramin Rojgar Yojna (MGNGRY)

(D) Indigenous Technical Knowledge (ITK)

Identification of ITK practices and mention at least one practice used by farmers. The students will acquaint themselves with this programme through the concerned agency.

Signature of Officer-In-Charge **Signature of Student**

Component – II :

Agricultural Industrial Attachment (AIA) / In-Plant training

Name of Industry_____

Location Rural ☐ Urban ☐

Mailing Address

Does the industry operate in an industrial estate Yes ☐ No ☐

Form of Ownership

1. ☐ Public
2. ☐ Private
3. ☐ Mixed
4. ☐ Cooperative

Type of Organization

1. ☐ Individual Proprietorship
2. ☐ Partnership
3. ☐ Limited Company
4. ☐ Shareholding Company
5. ☐ Other

Objectives of the industry

Mandates of the industry

Employment

Number of workers engaged

S.No.	Category	Male	Female	Total
1.	Working Proprietor and Partner			
2.	Unpaid Workers			
3.	Employees a) Manager & Professional staff b) Skilled staff Unskilled c) Staff d) Others			

Number of Shifts per day_____

Number of hours worked per week for all shifts_____

Working Capital (Rs.)____

Source of Finance

a) Personal and relatives _____

b) Loans from banks and bank credit institutions_____

c) Other (Specify)

Tenure of building occupied for industry

a Wholly owned
b Wholly rented
c Partly rented

Total area occupied for business……_____m^2

Contribution of the industry-promoting environment

Labour Costs

S.No	Particular	Amount Paid (Rs.)
1	Gross Wages & Salaries (including bonus & gratuity)	
2	Overtime payment	
3	Payment in kind, i.e. food, drinks, fuel, etc.	
4	Employer's contribution to social security schemes	
5	Training expenses	
6	Other labour costs (Please specify)	

Purchases

Goods Purchased (Value in Rs.)

a) Purchase of goods to be sold in the same condition…….

b) Raw material & supplies purchased for transformation…….

Current Technology Status

Type of Machines	Percentage	Average Age	Expected average life span of equipment
Manual			
Automatic			
Computerized			

Does the industry have any investment plan Yes/No

If yes, please indicated whether for

a) Replacement of old equipment

b) Increasing production capacity

c) Upgrading technology

Value of Stocks (At the time of in-plant training)

Description	Value (Rs.)
Material supplies and raw materials etc	
Semi finished products	
Finished product	
Goods purchased for resale	

Value of fixed assets

S.No.	Particulars	Value (Rs.)
1.	Land	
2.	Building & Other construction work	
3.	Transport & Other equipment	
4.	Others	

Output

S. No.	Description of main product	Unit	Exported		Locally sold	
			Quantity	Value	Quantity	Value
1.						
2.						
3.						

Main destinations of Exports

1.

2.

3.

4.

Marketing of Final products:

Direct selling ___%

Intermediaries ___%

Exports _____%

Is the industry a member of any association Yes No

If yes, indicate the type

Quality management

Are the products of the industry certified? Yes No

If yes, indicate type of certification

Is the quality of raw materials purchased also controlled Yes No

Does the industry have a laboratory Yes No

Total number of Quality control staff ……..

Are there any environmental regulations? Yes No

Does the industry have treatment facilities for waste?

Yes No No need

Signature of Student **Signature of Officer In-Charge**

PROFORMA FOR RESEARCH STATION

Name of the student :

Enrollment Number :

Batch/Year/Semester :

Name of the research Station :

Complete address of the Res Station :

Name of the division/department :

Name of the guide/PI :

Name of the project :

Experimental Details

Name of the experiment 1 :

Objectives :

Material and Methods used :

Observations :

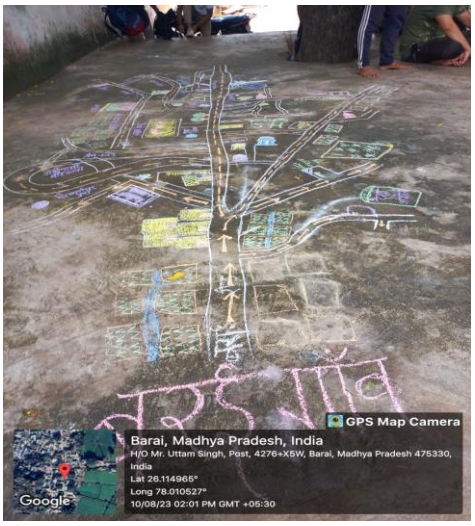
Results:

Significant findings :

Future scope of research :

Details of all the experiments should be provided under headings given in experimental details (Separate sheets to be attached)

Signature of the student **Signature of PI** **Signature of In-charge**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