

**PROJECT REPORT**  
**ON**  
**RURAL AGRICULTURE WORK EXPERIENCE (RAWE)**  
**AND**  
**AGRO INDUSTRIAL ATTACHMENT (AIA) / IN - PLANT TRAINING**

Submitted of RNB Global University for partial fulfillment for the

Degree of

B.Sc. (Hons.) Agriculture

By-

**ARMAN HUSSAIN**

Enrollment No.

**RNBGU201800086**

Under the guidance of

**DR.DIPALI GUPTA (ASSOC.PROFESSOR)**

**MR.AVINASH SHARMA (ASST.-PROFESSOR)**



**RNB GLOBAL UNIVERSITY, BIKANER**

**JANUARY, 2022**

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## ACKNOWLEDGEMENT

I Arman Hussain, student of Rnb global university studying in 4th year b.sc (hons.) agriculture feeling privileged after completion of my RAWE (rural agriculture work experience) and AIA (Agro-Industry Attachment) and IN-PLANT CLINIC programme.

Firstly, my heartiest regards to almighty for his warm bliss to be able to pursue my Rawe, Aia and plant clinic successfully, during this corona pandemic.

I want to show my sincere thank to “resp. DR.DURGA SINGH ”, kvk head, and “DR.G.S MEENA” ,(Shri Char Bhuja Agro Industry), for coordinating my Rawe and Aia programme in a great manner and supporting us in all possible ways. I also want to give my deep sense of gratitude to my coordinator, resp. “DR. KESHAV MEHRA SIR "sms entomology whose demonstrative and helping ingenuity has enabled the accomplishment of tasks in a congenial way. I specially like to give my cordial reverence to honorable “DR MADAN LAL REGAER”, assistant professor & sms agronomy", under guidance of whom, we came to know different aspects of ifs and practically involve in it.

I like to DR. G.S MEENA SIR (Shri Char Bhuja Agro Industry) to tell about the how the industry work and tell about different type of machines use in seed processing unit.

And I also thanks of owners of plant clinics to tell about the different type of fertilizer, insecticide, weedicide and herbicide.

I also thank our course`s coordinator, “resp. DR. DIPALI GUPTA and MR. AVINASH SHARMA ”, for his motivation and support during Rawe programme in making all possible arrangements as per my convenience during this pandemic to be able to complete my rawe / aia and degree programme in a conducive manner. Last, but not least, i also want to thank my parents family and friends for being with me at each possible step during entire session.

Signature of Student

## CERTIFICATE OF ORIGINALITY

### CERTIFICATE OF INTERNAL (UNIVERSITY) FACULTY GUIDE (Annexure-VII)

Enrolment No: RNBGU201800086

This is to certify that Mr/Ms: ARMAN HUSSAIN

Of B.SC (HONS,) AGRICULTURE (Program name) has completed this Summer Internship/  
Research Project under my supervision in partial fulfillment for the award of the **Bachelor's  
Degree in Science: B.Sc.** from RNB Global University, Bikaner.

Course Name: Summer

Internship Course Code:

---

SIGNATURE OF INTERNAL FACULTY GUIDE

SIGNATURE OF STUDENT

PLACE: RNB GLOBAL  
UNIVERSITY, BIKANER

DATE: \_\_\_\_\_

**CERTIFICATE OF EXTERNAL GUIDE: KVK CENTRE  
CERTIFICATE / INDUSTRY CERTIFICATE-1**

**RNB Global University, Bikaner, Rajasthan 334601  
School of Agriculture,**

**CERTIFICATE**

**READY Component-I Rural Agricultural Work Experience (RAWEX)  
READY Component-II Agro-Industrial Attachment (AIA)**

This is certified that this is a bonafide record of practical work done and data collected by Mr/Kum/Smt ARMAN KHUSAZN I.D.No, RNB/64201800086 in Rural Agricultural Work Experience Programme and Agro-Industrial Attachment Programme during VII<sup>th</sup> semester of Final year B.Sc. (Hons.) Agriculture course during the 2021-22 academic year.

Dean  
(Signature's with seal)

Name & Signature of the Course incharge's

Name

Signature

1) Dr. Keshav Mehta

[Signature]

2) Dr. G. S. Meena

[Signature]



**CERTIFICATE OF EXTERNAL GUIDE: KVK CENTRE  
CERTIFICATE / INDUSTRY CERTIFICATE -2**



**SHRI CHAR BHUJA AGRO INDUSTRIES PVT.LTD.**

F-135, RIICO INDUSTRIAL AREA, BEECHWAL

BIKANER-334002 (RAJ.) Ph No-0151-2250566, 2944566

No CBS/BKN/Ind./2021/826

Date 05.12.2021

**TO WHOM SO EVER IT MAY CONCERN**

This is to be certify that **Mr.Arman Hussain** B.Sc(Hons)Ag.IV year student of **RNB Global University, Bikaner-334601** had undergone **03 weeks** industrial training experience from 15 November 2021 to 05 December 2021 under our supervision. The student was given extensive training in the activities Viz., Cleaning, Grading, Processing, Separating, Packing and Marketing of Mustard, Guar, Oat, Jawar, Gram, Moth, Cumin, Bajra etc from our industry. We would like to put on record the learning efforts shown by **Mr.Arman** in completion of assigned task during this period. He was respectful to him senior and colleagues throughout the training Period. The student has maintained minimum of 95% attendance during training. The overall work performance of the student was evaluated by our industry as outstanding.

We wish him best wishes for him future Academic Endeavours....

For Shri Char Bhuja Agro Industries Pvt.Ltd.

Authorized Signatory



## **EXECUTIVE SUMMARY**

The report gives us the basic idea about functioning at kvk bikaner and shri char bhuja agro industries. pvt.ltd. And plant clinic.

During 22 weeks program each and every aspect of an kind of technical failure or human error and its effect on functioning of rawe and its impact then what are steps taken to overcome it within time period in order of smooth functioning of agriculture management. With the help of this report one can get each steps taken.

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# CHAPTER-1

## 1.1.INTRODUCTION TO RAWE

### **RURAL AGRICULTURE WORK EXPERIENCE {RAWE}:**

Rawe is an agricultural extension programmes that provide elementary experiences of areas of agriculture sciences of the rural areas.

The programmes are facilitated by Agricultural Universities and Colleges for experiencing about current trends of agriculture scenario and technology of the rural society. The programme is commenced with total duration of 14 weeks with a weightage of 0+14 credit hours for B.Sc. (Hons.) Agriculture, 4th year, 7th semester students. The rural training is inducted in the campus by different faculties, Village attachment training programme and University/College/KVK/research Station.

### **IMPORTANCE**

- To prepare, us agricultural graduates for better carrier in future agro oriented sectors.
- Preparing agro graduates to face the challenges by acquiring knowledge's and skill through hands on experience.

### **OBJECTIVE**

- Understanding rural life, socio economic situation, practical training, communication skills in TOT.
- Identification of agricultural problems in village.
- Conducting field visit, method demonstration and group discussion with farmers on need base agricultural topics.
- To provide an opportunity to the students to understand the rural setting in relation to agriculture and allied activities.
- To make the students familiar with socio-economic conditions of the farmers and their problems.
- To impart diagnostic and remedial knowledge to the students relevant to real field situations through practical training.

- To develop communication skills in students using extension teaching methods in transfer of technology.
- To develop confidence and competence to solve agricultural problems.
- To acquaint students with on-going extension and rural development programmes.

## 1.2. ORIENTATION PROGRAMME IN KVK

I, Arman hussain, along with College of agriculture, Bikaner students were attached with Krishi Vigyan Kendra Bikaner-1 coordinate by DR. Keshav Mehra sir who introduced us about the institute, its division and units. He also gave us an overview of the ongoing project in the institute.



Figure:1  
Orientation programme



Figure:2  
Students of coa and other colleges

## 1.3.ABOUT ORGANIZATION

### KVK BIKANER

- Location – Bichwal ( Bikaner)
- Geographical location- 28° 5'54" North and 73° 21' 30"East
- Source of the irrigation-Tubewell And Canal.

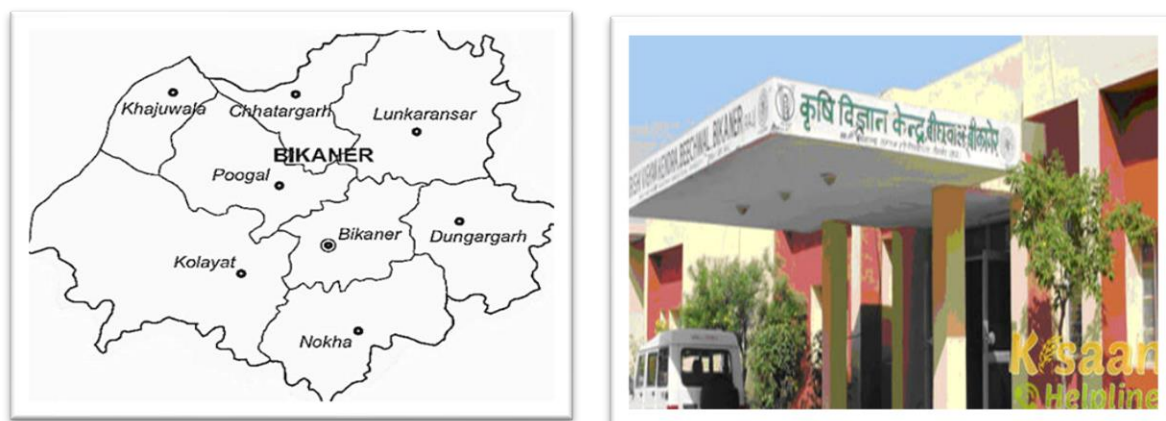


Figure:3

Krishi vigyan kendra, Bikaner

### OBJECTIVE

- Promotion of agro technology for drought proofing covers, crop production, arid horticulture and moisture conservation.
- Promotion of arid horticulture for organized agriculture production/income.
- Improvement in animal production through feeding, management and animal health etc.
- Promotion of green fodder cultivation and organic farming in the area.
- To develop skill for farm women in agriculture, animal husbandry, horticulture and home science.
- Promotion of cultivation of seed spices, medicinal plants and preparation of value added products.

- Integrated pest management in rabi crops (wheat, gram and mustard) and kharif crops (Guar, moth bean and groundnut).
- To promote the value addition activities of locally available arid fruits and vegetable.
- Skill oriented trainings for extension functionaries in agriculture, animal husbandry, horticulture, home science and extension education.

### **AGRONOMICAL INTERVENTION IN KVK**

- I. **Disc plough:-** The *disc plough* is designed to work in all types of soil for functions such as soil breaking, soil raising, soil turning and soil mixing.



Figure:4

Disc plough

- II. **Harrow:-** A harrow is a farm tool. It is an implement for breaking up and smoothing out the surface of the soil. In this way it is different from a plow, which cuts deeper into the soil. A plow also lifts up the soil and tips it over, but a harrow works mostly by cutting into the soil and breaking it up.



Figure:5

harrow

- III. **Planker:-** The planker or clod smasher is a homemade wooden implement which is useful for crushing clods. Leveling also helps in water distribution without logging during irrigation.



Figure:6

Planker

- IV. **Seed drill:-** A *seed drill* is a device that sows the seeds for crops by positioning them in the soil and burying them to a specific depth.





Figure:7

Seed drill

- V. **Thresher:-** Farm machine for separating wheat, peas, soybeans, and other small grain and seed crops from their chaff and straw.



Figure:8

Thresher

- VI. **Drone Technology:-** Drones can help farmers to optimize the use of inputs (seed, fertilizers, water), to react more quickly to threats (weeds, pests, fungi), to save time

crop scouting (validate treatment/actions taken), to improve variable-rate prescriptions in real time and estimate yield from a field.



Figure:9

Drone technology

## 1.4.UNIT ATTACHEMENT LEARNING DETAILS

### 1.4.1.1. INTEGRATED FARMING SYSTEM UNIT

**Integrated Farming System:-** Integrated farming system is an interdependent ,inter-related production system based on few crops animals and related subsidiaries enterprises in such a way that maximizes the utilization of nutrients of each system and reducing external inputs.

Integrated Farming System (IFS) is a combination of many systems, it attempts to increase farmers income using natural resources on sustainability basis which can be obtained by integrating crop husbandary with allied enterprises is called as IFS.



Figure:10

Ifs unit, skrau Bikaner

#### OBJECTIVES OF IFS:-

- Efficient recycling of farm and animal wastes.
- Minimizing the nutrient losses.
- Maximizing nutrient use efficiency.
- Adoption of efficient cropping systems and crop rotations.

- Complementary combination of farm enterprises.

Definition – Enterprise in farm business is defined as the production of single crop or a kind of stock. Generally farmers take more than one enterprise on their farms.

- The main objectives of the farming is to get maximum profit with minimum expenditure by combining enterprises.
- The combination of enterprises on a farm is influenced by the relationship that exists between the enterprises.

Allied Enterprises:-

1. Dairy Farming
2. Sheep and Goat farming
3. Poultry farming
4. Duck farming
5. Turkey rearing
6. Piggery
7. Rabbit farming
8. Bee keeping
9. Pigeon rearing
10. Aquaculture
11. Sericulture
12. Mushroom cultivation

1. Advantages of Integrated Farming System (IFS):-

1. Productivity
2. Profitability
3. Sustainability
4. Balanced food

5. Environmental safety
6. Recycling of waste
7. Saving energy
8. Adoption of New Technology
9. Money Round the year
10. Availability of fodder, fuel and timber
11. Employment round the year

## **FARMING COMPONENT IN IFS:-**

### **1) POMEGRANATE**

Sn –PUNICA GRANATUM

Family –puniceae

Origin- persia

Work:-

- Pruning of pomegranate plant
- Remove the unwanted plant

**pruning**; the removal or reduction of parts of a plant, tree, or vine that are not requisite to growth or production,







Figure:11

Pruning and removing weed of pomegranate plant

## 2) OKRA

Sn. – ABELMOSCHUS ESCULENTUS

Family- malvaceae

Origin- ethiopia

Work;-

land preperation

- Plot area – 6-6 m.
- Make bunds on border of our plot
- Remove the weeds from the allotted plots
- Did ploughing of land using hand harrow



Figure:12

Land preparation for sowing of okra seed

### Agronomical intervention

- allotted plots area was properly leveled with the hand leveler
- Fertilizer [UREA and DAP] was added on the allotted plot area.
- Proper mixing the fertilizer into the soil, then leveling was done ,15cm lines were made at equal distance on plot.
- Seed sowing 'OKRA in 5cm depth.' i.e., bhindi was done.



Figure:13

Land preparation for sowing of okra seed



## LIVESTOCK COMPONENT

The production of animals good from domesticated animals such as meat, dairy, wool, leather etc. Animal production has been increased worldwide in 40 years, accounts for 40% of gross value of agriculture.

### 1. Cow:-

Rathi breed:- 7 Calf :- 2

Milk production:- 40 lit per day

Average cattle dung production:- 10 kg per day

Total dung production per day:  $10 \times 7 = 70$  kg per day

Total production of dung Per year =  $70 \times 365$  day = 25.5 tonne ( approx )

Use of cow dung for the production of vermicompost

No. of vermicompost pit Four



Figure:14

Rathi breed in ifs unit

### 2. Goat:-

Goats are mainly grown to produce milk and meat.

Sirohi breed total no. = 25

Female = 17

male = 3

kids =5



Figure:15

Sirohi breed in ifs unit

3. **Poultry:-** poultry, in animal husbandry, birds raised commercially or domestically for meat, eggs, and feathers .



Figure:16

Poultry in ifs unit

- In ifs unit....

Kadaknath breed total =20 Male =2 female =18



Figure:17

Kadaknath breed and poultry food pots

### **Feeding Requirement of livestock**

- ✓ CATTLE: Green fodder 20 to 25 kg, Dry fodder -3.5 kg, concentrate- 3- 4 kg (300-500) g/kg milk produced by the animals.
- ✓ GOAT: Green fodder – 2.5-3 kg (2.7 kg observed under IFS assignment), dry Fodder - 150-200 gm, concentrate -350 g.
- ✓ Poultry: Feed- paddy grain + maize soaked in adequate water To facilitate swallowing.



### 1.4.1.2. NURSERY UNIT

**Definition-** nursery, place where plants are grown for transplanting, for use as stock for budding and grafting, or for sale. Commercial nurseries produce and distribute woody and herbaceous plants, including ornamental trees, shrubs, and bulb crops.



Figure:18  
Nursery visit, skrau bkn.

## VERMICOMPOST UNIT

**Definition-** (vermi-compost) is the product of the decomposition process using various species of worms, usually red wigglers, white worms, and other earthworms, to create a mixture of decomposing vegetable or food waste, bedding materials, and vermicast. This process is called vermicomposting.



Figure:19  
Vermicompost bed

Preparation time – 40-45 days

### Process of vermicomposting:

Vermicomposting unit should be done in a cool, moist and shady site.

- Cow dung and chopped dried leafy materials are mixed in the proportion of 3: 1 and are kept for partial decomposition for 15 – 20 days.
- A layer of 15-20cm of chopped dried leaves/grasses should be kept as bedding material at the bottom of the bed.
- Beds of partially decomposed material of size 6x2x2 feet should be made.
- Each bed should contain 1.5-2.0sq of raw material.
- Red earthworm (1500-2000) should be released on the upper layer of bed.
- Water should be sprinkled with can immediately after the release of worms.
- Beds should be kept moist by sprinkling of water (daily) and by covering with gunny bags/polythene. → Bed should be turned once after 30 days for maintaining aeration and for proper decomposition.
- Compost gets ready in 45-50 days.
- The finished product is 3/4th of the raw materials used.

Benefit:-

- Improves soil aeration
- Biowastes conversion reduces waste flow to landfills
- Enhances germination, plant growth, and crop yield
- It helps in root and plant growth
- Enriches soil



Figure:20  
Vermicompost



## VERMIWASH UNIT

### VERMIWASH

Vermiwash is a **liquid extract produced from vermicompost** in a medium where earthworms are richly populated. It comprises a massive decomposer bacteria count, mucus, vitamins, different bioavailable minerals, hormones, enzymes, different anti-microbial peptides, etc.

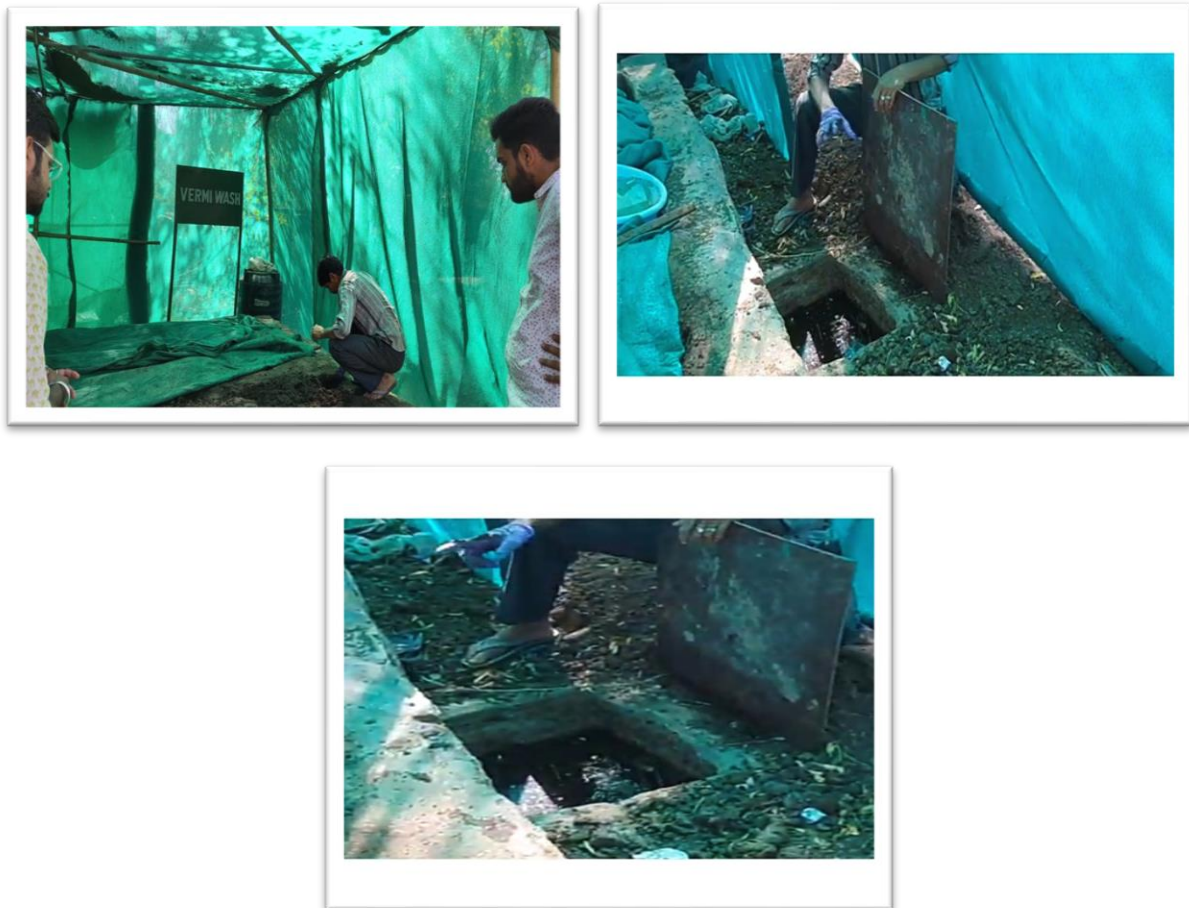


Figure:21

Vermiwash unit in nursery

### PROCESS OF VERMIWASH:

Vermiwash may be collected from the vermicompost units as a byproduct liquid extract. Whereas other method (Kale, 1998) [16] of Vermiwash preparation is followed by taking One kg adult earthworms (approximately 1000 worms) of the same species (*E. euginae*) were collected and without any mixing of the casts, they were released into a 500 ml of lukewarm distilled water (37 °C - 40 °C) and agitated for two minutes. Earthworms were taken out and



again washed in another 500 ml at room temperature (+30 °C) and released back into the tanks. The agitation in lukewarm water made the earthworms to release sufficient quantities of mucus and body fluids. This is known as true vermiwash. Transferring into ordinary water was to wash the mucus sticking still on to their body surface and this also helped the earthworms to revive from the shock. Another method for the preparation of vermiwash, a plastic container of 15 to 20 liters capacity is required and the base of the container is fitted with tap to collect the watery worm extract. The container is filled with different successive layers. First base layer, medium sized bricks or stones up to a height of 10-15 cm filled. Above the base layer a layer of coarse sand (up to 6 inches) and fine sand (5 inches) are spread. Introduction of locally available earthworms (*Eisenia foetida*) mixing with fertile soil applied. After that, a layer of partially decomposed cow dung (20-25 cm) and organic residues of 40-45 cm were poured. All the layers in the container is moistened by sprinkling water over it. Container is sprinkled with approx 2 L water per day. After 16 to 20 days preparation of vermiwash in the unit begins. Everyday about 1-2 L of vermiwash will be collected. Fig 1: Preparation of vermiwash For nutrient supplement, vermiwash (1:10) i.e @ 1 litre is generally mixed with 7-10 litres of water and the solution is sprayed on leaves of the growing crop at the evening. However, to control various pest and diseases, 1 litre of vermiwash is thoroughly mixed with 1 litre of cow urine and 10 liters of water and is kept overnight before spraying.

#### **Uses of vermiwash:**

It **promotes better root growth and nutrient absorption**. It improves nutrient status of soil- both macro-nutrients and micro- nutrients. It can also be added to compost pits to hasten the degradation process. Vermiwash is the coelomic fluid extraction, which have enzymes, which stimulate the growth and yield of crops.

## **CUTTING OF BOUGAINVILLEA, ROSE AND NAG CHAMPA PLANT**

### **CUTTING:-**

A cutting is a **section of plant such as a modified stem, leaf, or root used for vegetative propagation** that forms either adventitious shoots, adventitious roots (stem and single node cuttings), or both (root and leaf cuttings).

#### **i. BOUGAINVILLEA**

Sn.- Bougainvillea glabra

Family:- Nyctaginaceae

Origin:- South America

### **PROCESS ARE FOLLOWED TO CUTTING THE BOUGAINVILLEA:-**

1. Taking a Cutting from the Parent Plant:- **Cut a mature stem to a length of 6–8 inches (15–20 cm)**. Use a pair of sharp pruning shears to snip the lower end of the stem at a 45 degree angle. Only take healthy cuttings that do not have signs of disease or infestation. Cutting the stem at an angle increases its surface area, allowing it to take up more moisture and nutrients from the planting soil.
2. **Prune the leaves from the stem.** The stem is the only part of the bougainvillea that will take root successfully. Cut away all flowers, leaves, and small offshoots from the slender, woody shaft. Trim and discard any sections that are still green, as these are less likely to survive when planted.
3. **Dip the cut end in rooting hormone.** Wet the bottom of the stem and press it into a container of powdered rooting hormone. Coat the underside thoroughly, but avoid caking or clumping. To remove excess powder, tap the stem lightly with your fingertip.
4. Planting the Cutting, **Fill a small container with a well-drained soil.** For best results, purchase a growing medium designed specifically for propagating from seeds and cuttings. You can also use a mixture of commercial potting soil, organic garden compost, and sand. Leave about ¼ inch (0.64 cm) at the top of the container to allow space for watering.
5. **Insert the cutting into the soil.** Sink the stem 1.5–2 inches (3.8–5.1 cm) below the surface of the soil to ensure that it's anchored firmly. If you're working with a denser

soil mixture and you're worried about damaging the stem, it may help to first open up a narrow hole using a pencil or similar object.

6. **Water the newly planted cutting thoroughly.** Use enough water to moisten the surface of the soil without oversaturating it. After watering, allow the cutting to sit undisturbed. A healthy drink will encourage it to begin putting down new roots.
7. **Cover the potted cutting with a plastic bag.** The surrounding layer of plastic will create a miniature greenhouse effect, trapping in humidity. In just a few weeks, the abundance of moisture will help the plant begin growing on its own. Once it's covered, pick out a cool, shady spot inside your home away from direct heat or sunlight to store the cutting.
8. **Look for the cutting to begin sprouting within 6-10 weeks.** You'll know your bougainvillea cutting has taken root when small green leaves begin to form along the stem. In the meantime, avoid removing the bag or otherwise disturbing the plant. Doing so could inhibit the rooting process.



Figure:22

Cutting of bougainvillea

## ii. ROSE PLANT

Sn.- ROSA

Family:- ROSACEAE

Origin:-CENTRAL ASIA

### **PROCESS ARE FOLLOWED TO CUTTING THE ROSE PLANT:-**

Take rose cuttings from strong, healthy plants during morning hours, when they're well hydrated. Follow these simple steps:

1. Choose a stem or stems between a withered bloom and the rose's woody base. One stem will make several cuttings.
2. Remove the bloom and stem tip. Cut at a 45-degree angle, right above the first set of leaves at the top and again above the last set of leaves at the stem's bottom. Put cut stems in water immediately.
3. Cut each stem into 6- to 8-inch lengths, so that each cutting has four "nodes" — that's where leaves emerge on stems.Keep cuttings moist at all times.
4. Remove all the leaves *except* one set at the top of each cutting. This helps cuttings root and helps you gauge their progress.
5. Pour a small amount of RootBoost™ rooting hormone into the dish. Pour only what you need, and discard the excess when you're done.
6. Moisten the cutting's bottom half, and dip it into the rooting hormone until covered.
7. Use a stick or pencil to make a planting hole 3 to 4 inches deep in your rooting bed or container. Make it big enough so you can insert the cutting without brushing off the hormone.
8. Stick the cutting into the hole so its bottom half and at least two nodes are covered and then firm around the soil it.
9. Stick the cutting into the hole so its bottom half and at least two nodes are covered, and then firm around the soil it.



Figure:23

Cutting of rose

iii. **NAG CHAMPA PLANT**

Sn.- PLUMERIA PUDICA

Family:- APOCYNACEAE

Origin:- INDIA

**PROCESS ARE FOLLOWED TO CUTTING THE NAG CHAMPA PLANT:-**

1. Find a healthy branch on the mother plant. Select a branch with a brown or grayish surface, that's about 12 to 18" long, and firm along the entire length. Look for a branch you can remove without marring the appearance of the mother plant or exposing its trunk to too much sunlight.
2. Use a very sharp knife or razor knife. Use rubbing alcohol, disinfecting bathroom cleaner spray, or a 10% bleach solution to sterilize all of the knife's surfaces.

3. Carefully cut sever the branch from the mother plant. Cut it flush at the base so you don't leave a stub behind. Then, check the cut end of the branch – if the cut is jagged, clean it up. You want a straight, clean cut.
4. Dip the cut end into powdered sulfur to keep fungus from developing and to stop the sap from leaking out.
5. Cut away all flower and flower bud stalks. Remove all but two leaves at the tip of the cutting, too, to encourage its energy to go into making new roots.
6. Wrap the end of the cutting in plastic wrap or in a pot of damp coconut coir. Leave it for two weeks.
7. After two weeks, fill a one-gallon plastic nursery pot with two thirds cactus mix, combined with one-third perlite or pumice. This mix will drain quickly to prevent the cutting from rotting. Saturate the mixture with water.
8. With your fingers, poke a hole in the center of the potting soil, and insert the cutting, 1 1/2" or 2" deep. Firm the soil around the cutting. To keep the cutting anchored in place, set a stake next to the cutting, and carefully tie the cutting to the stake.
9. Water the potting soil to settle the soil around the cutting.
10. Put the potted cutting in a warm, protected spot with plenty of indirect light and good airflow. On a patio with filtered light or under a shade tree are good choices. Keep it out of direct sunlight.
11. Do Not water the pot until you see new leaves appear at the tip. When you see those new leaves, chances are, the cutting has rooted.
12. To check, gently tug on the cutting. Rooted cuttings will resist. If it pulls out, put it back, water, and wait. Test again in another month.
13. Once you see new leaves fully unfurl, start to acclimate your new *Plumeria* plant to sunlight. Move it into morning sun for an hour, then two hours, etc. until the cutting is in full, direct sunlight for *at least* six hours a day (that's considered full sun).
14. After the plant is acclimated, plant it into a permanent, year-round sunny spot in your garden or in a very large container in a spot in full sun.





Figure:24

Cutting of nag champa



## SEED SOWING OF MARIGOLD PLANT

Sn. – CALENDULA OFFICINALIS

Family- ASTERACEAE

Origin- Europe and Northern Africa

Work;-

land preparation

- Remove the weeds for field.
- Did ploughing of land using hand harrow.
- field was properly leveled with the hand leveler.
- make a furrow.
- remove the seed from 'MALA' flower.
- Seed sowing 'Marigold .' i.e., Genda was done.



Figure:25

Seed sowing of marigold

### 1.4.1.3. VISIT FOOD PROCESSING UNIT

**FOOD PROCESSING**-Food processing is the transformation of agricultural products into food or food from one form to another form.

Secondary food processing turns the ingredients into food such as bread from flour.

#### Importance

- It improves the taste, flavour, texture and colour.
- It makes the food attractive.
- It helps to increase the nutritious quality through value addition.



Figure:26

Marushakti – CHSc bakery visit, skrau.

**Marushakti** - CHSc Bakery Unit is one of the top and best destinations for family and friends in the field of bakery, in Bikaner. It is Also known as bakery, bake, and pastry category and much more. Production of bajra biscuit on commercial level with high level of nutrition.

#### Benefit of bajra biscuit:

**High in fibre**-Digestion is sluggish during the rainy season, so it helps to stick to high-fibre foods like bajra.

#### Heart friendly-

Bajra is rich in magnesium, which helps keep the heart healthy. It has potassium, which dilates blood vessels, allowing blood to flow more easily. This helps reduce overall blood pressure.

Bajra also has fibre that helps reduce LDL, or bad, cholesterol. Magnesium helps control the glucose receptors in the body and keep diabetes at bay.

#### Marushakti - CHSc Bakery Unit Products

- Bread
- Bread roll
- Pizzas
- Pies
- Buns
- Flatbreads
- Bagels
- Doughnuts
- Pastries
- Soda bread
- Biscuit (bread)
- Crackers
- Tarts
- Brownies
- Cakes
- Cupcakes

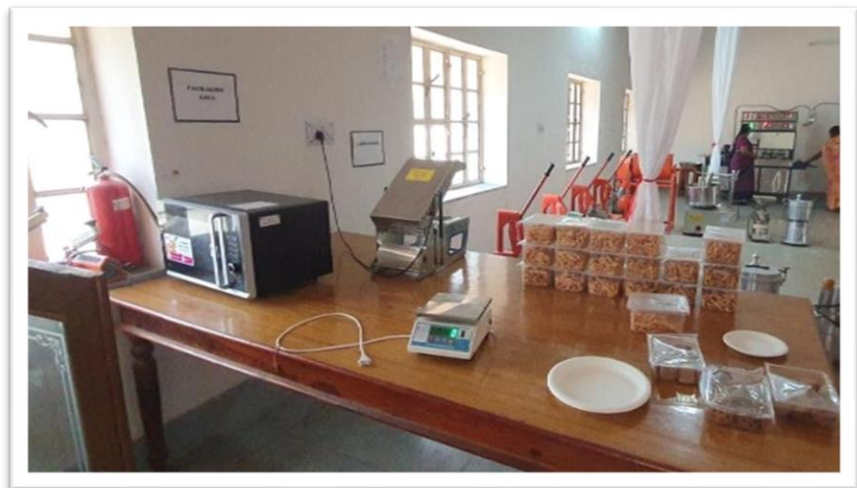


Figure:27

Bakery CHSc , skrau

#### 1.4.1.4. TRANSFER OF TECHNOLOGY

Transfer of technology is defined as the transfer of result of basic and applied research to development In production and commercialization of new and improved products services.

Its of two types:

- **Vertical technology transfer:** When information is transferred from basic research to applied research to development and from development to production. Suh transfer occurs in both directions.
- **Horizontal transfer of technology:** When technology used in one place, organization or context is transferred and used in another place or organization.

Transfer of Technology in agriculture:

- Front line demonstration in farmers' field.
- Field days an interactive farmers scientists meetings or focus groups.
- National level/State level training programme for development personnel, state officials and farmers and other agencies.
- Farmers Participation Action Research Programme (FPARP).
- Kisan Melas and exhibitions.
- Publication including extension pamphlets and technical bulletins.
- Programmes in public media like Radio talks, TV programme, Newspaper and other forums.

##### I. field visit:-

- field visit with respected dr. Keshav Mehra sir.
- **Waste to wealth:-** Keeping the potential of waste management in consideration, the 'Waste to Wealth Mission' of the PMSTIAC aims to identify, develop and deploy technologies to treat waste to generate energy, recycle materials, and extract resources of value. The mission will also work to identify and support the development of new technologies that promise to create a clean and green environment. The mission will assist and augment the Swachh Bharat and Smart Cities projects by leveraging science,



technology, and innovation to create circular economic models that are financially viable for waste management to streamline waste handling in the country.



Figure:28

Field visit of “weed to wealth” for saharakunjiya village husangsar, bkn.

## II. Field visit

- **Emamectin benzoate uses:-** Dr. Keshav Mehra sir awarning the farmers about use of this insecticides for the effective management of *HELICOVERPA ARMIGERA* (Hubner) Hardwick and *SPODOPTERA LITURA* (Fabricius) infesting groundnut.
- Control: emamectin benzoate 5SG @0.02%





Figure:29

Field visit seharkunjiya village

### IDENTIFICATION MARK OF TERMITE



Figure:30

Termite insect

**Control of termite:-****Cultural method:**

- Flood irrigation at the time of planting because it stops termite attack due to excess moisture and the optimum moisture level will revive.
- Fill the gaps in the field to compensate the population.

**Physical method:**

- Locate and destroy the termite colony.
- Collect and destroy the termite affected setts from the field.

**Chemical method:**

- Dip the setts in imidacloprid 70WS 0.1% or chlopyriphos 20 EC 0.04% for 5min.

## 1.5.VILLAGE ATTACHEMENT LEARNING DETAILS

### 1.5.1.1. OBJECTIVE OF REPORT - Survey of nearby village.

Under this module of RAWE, different aspects of agricultural extension, especially field extension programmes, were studied by the students during their attachments to different villages, which included study on effectiveness of Krishi Mela in dissemination of information, agro-ecosystem analysis through participatory rural appraisal (PRA) techniques, constraints analysis, study of communication/ information sources use pattern, role and importance of village level institutions, documentation during rural agricultural fair through photo features, strength-weakness-opportunity-threat (SWOT) analysis of farming in selected village, etc.

Effectiveness of Krishi Mela in dissemination of information was studied by the students. Different aspects of agriculture viz. soil health management, crop farming, horticultural crop production, livestock production, fish farming, financial and developmental schemes were studied by the students through interaction with the personnel of respective organizations participated in the fair and farmers visiting the fair.

Agro-ecosystem analysis was done by the students during their village attachment at akasar village, which included analyses of space, time (time line, time trend, seasonality diagram, etc),

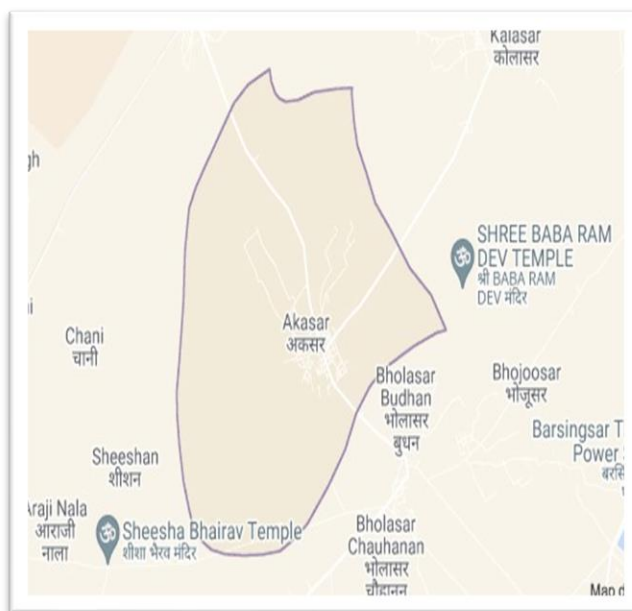


Figure:31

Village map: akasar

flow (mobility map) and decision (wealth ranking, constraints analysis). Different methods followed were transect/ biodiversity walk, resource profile of the village, time line, seasonality diagram of crops, farming activity scheduling of crops, mobility diagram, etc. This exercise has helped the students to understand the rural agro-ecosystem for formulating suitable extension approach to improve the farming.



Figure:32  
farmers of akasar village

## 1.5.1.2. VILLAGE OVERVIEW

### About Akasar

- According to Census 2011 information the location code or village code of Akasar village is 069499. Akasar village is located in Kolayat Tehsil of Bikaner district in Rajasthan, India. It is situated 25km away from sub-district headquarter Kolayat and 25km away from district headquarter Bikaner. As per 2009 stats, Akasar village is also a gram panchayat.
- The total geographical area of village is 4706 hectares. Akasar has a total population of 4,243 peoples. There are about 526 houses in Akasar village. As per 2019 stats, Akasar villages comes under Kolayat assembly & Bikaner parliamentary constituency. Bikaner is nearest town to Akasar which is approximately 25km away.

Akasar - Village overview	
Village (Hindi):	Akasar
Gram Panchayat:	Akasar
Block / Tehsil:	kolayat
District:	Bikaner
State:	Rajasthan
Pincode:	334001
Area:	4706 hectares
Population:	4243
Male	2186

Female	2057
Households:	526
Nearest Town:	Bikaner (25 km)

Table:1

Data of akasar village

## 1. SOCIAL MAPPING

It involves the sketching houses and other social facilities and infrastructure (i.e temple, stores, roads, mills, schools, water pumps, irrigation and recreation facilities in a village. The village is divided in streets, is relatively.

1. Temples-5
2. Schools-4
3. Pump based boring
4. Dairy
5. Anganwadis-2
6. Hospital-1
7. Bus facilities
8. Bank -2

## 2. RESOURCE MAPPING

### A} Farm equipment's and machinery

1. Tractor-225
2. power tiller-15
3. Knapsack sprayer- 70 to 80
4. Thresher- 40-45
5. seed drill/country plough
6. Chaff cutter-60

### B} Transportation

1. Cycles-60-70



2. Motorcycles-530
3. Jeeps/cars-80-90
4. Trucks -10-12
5. Tractors-225
6. JCB-4-5
7. Auto -15-20
8. Pick up van- 50-60

### **3. TOPOGRAPHICAL, HYDROLOGICAL AND CONTOUR MAPPING**

**Akasar village come under agro climatic zone IC (Hyper arid partial irrigated zone)-**

In Akasar village, we find hot summer, cool winter, unreliable rainfall and great variation in the temperature (20C in Jan. to 48.90C in June). The rainfall mostly restricted to rainy season. The monsoon normally comes in the first week of the July and recedes in the last week of September. The major Kharif crop of the zone are pearl millet, moth bean, cluster bean and sesame under rainfed conditions and groundnut, cotton under irrigated conditions. In Rabi, chickpea, mustard and wheat are major crops in this zone.

**Major characterstic about Akasar village soil-**

**medium soil-**

Desert soils and sand dunes aeolian soil, loamy coarse in texture & calcareous.

**Rain Fed Area-**

Fine sand to loam sand soil, sand dunes found in the area. Guar, Bajra, kharif pulses Gram, Taramira, Barley & Wheat crops.

**Types of Houses-**

1. Pucca house-almost 420
2. Thatched roof~45

Farm Implements- Bikaner

Fertilizers – from Bikaner

Food grains marketed under APMC, 25 km away.

#### **4. SEASONAL ACTIVITY**

Variables such as Rainfall distribution, food availability, agricultural production, income Expenditure, health problem and others.

- 100 families engaged in cattle,15-20 in buffalo,4 in sheep/goat. 49
- Most of people are engaged in farming -based livelihood such as groundnut wheat cropping system livestock, with few people engaged in non- farming (shop keeping), teaching and jobs.

#### **5. Major intervention regarding farm and livestock**

- Farmers mostly using own farm seeds but these some varieties are recommended, some farmer growing also it.
- The major Kharif crop of the zone are pearl millet, moth bean, cluster bean and sesame under rainfed conditions and groundnut, cotton under irrigated conditions.
- Cluster bean:- RGC -1017
- Pearl millet:- MBC 2, PC 443, JBV 3, PC 383, ICMV 221, Raj 171
- Sesame:- RT-46 , RT-54
- Groundnut – HNg-69, HNG- 10
- In Rabi, chickpea, mustard and wheat are major crops in this zone.
- Wheat – DWB -187, WH1184
- Cotton Bikaneri narma, bt-cotton

#### **6. Major strength and potential for agriculture**

##### **STRENGTH**

- Unity among people of different caste and creed.
- Knowledge of ITK.

##### **POTENTIAL**

- Improved technique of farming using integrated farming system.
- Setup of different agro-based industries.
- Improving the socio economy of Rural in sponsored kvk facility.

## 7. PROBLEM IDENTIFICATION AND DIAGNOSIS

- Indian antelope invasion- netting and fencing around.
- Low irrigated area Irrigation is a very important ingredient of agriculture in this village.
- Lower rainfall though agriculture is the main occupation of Rajasthan but it is mostly dependent on the monsoon which is not only unpredictable and uncertain here but also has a short span.

### IDENTIFICATION AND CONTROL OF RED COTTON BUG

The adult bug measures about 12-15 mm in length. The females are longer (15 mm) than the males (12 mm). It is blood red in colour except for eyes, scutellum, anal, antennae which are black coloured...

#### CONTROL-

- Organic Control. Foliar sprays with diluted neem oil have shown to be effective against this pest...
- Chemical Control. Always consider an integrated approach with preventive measures and biological treatments if available...



Figure:33

Red cotton bug insect

### 1.5.1.3. INFORMATION ABOUT THE ALLOTTED FARM

#### Family

Our host farmer, Ramswaroop Godara ji

(age 31years), s/o Pemaram Godara (65 years)

Akasar , Rajasthan. His main occupation is farming (livestock, Crops). He have a family member of 5 Consisting of wife, rupadevi godara (age 29), son rajesh godara (4 years) Daughter- seema godara (2years), Total number of family -5 labour available for farm use is 5.

He has his landholdings of about 7.5 hectares as irrigated land.

Television-1

Refrigerator-1 Bicycle 1 Bike 2

Farm implements- 7to 8(MB plough tractor drawn, , Harrow, knapsack sprayer, seed drill, chaff cutter, Tractors, ).

#### FARM PRODUCTION

Net cropped area is 7.5 hectare in which cotton and groundnut crops are grown.



Figure:34

Allotted farmer

## FARM PRODUCTION SYSTEM

Net cropped area of the farm about 7.5 hac. .... In which during kharif cotton and groundnut and during rabi wheat chickpea mainly grown. ....

Source of irrigation:- tubewell Type of irrigation  
sprinkler by tubewell



Figure:35

Groundnut crop and cotton crop

### 1.5.1.4 RAWE MANUAL RECORD



## CHAPTER-2

### 2.1 INTRODUCTION TO AIA

#### AGRO INDUSTRIAL ATTACHMENT PROGRAMME

Agricultural education is an important tool in ensuring increased agricultural productivity, sustainability and environmental and ecological security, profitability, job security and equity. It is a programme mainly aimed for preparing agricultural graduates for better career in agriculture. Providing agricultural graduates-oriented education to face the challenges by acquiring knowledge and skill through the hands-on experience. Learning by doing is the basic aim and theme of the programme.

**DEFINATION** - AIAP (Agricultural Industrial Attachment Programme) is a programme for imparting quality, practical and production oriented for agricultural degree.

Importance of AIAP Programme-

- Preparing agricultural graduates for better career in agriculture.
- Preparing agricultural graduates-oriented education to face the challenges by acquiring knowledge & skill though hands on experience.
- Developed Entrepreneurial Skills.

#### OBJECTIVES OF AIAP:-

- To expose the students to Industrial environment, which cannot be simulated in the university?
- To familiarize the students with various Materials, Machines, Processes, Products and their applications along with relevant aspects of shop management.
- To make the students understand the psychology of the workers, and approach to problems along with the practices followed at factory.
- To make the students understand the scope, functions and job responsibility-ties in various departments of an organization.
- Exposure to various aspects of entrepreneurship during the programme period.

## 2.2 ABOUT THE ORGANIZATION

### SHRI CHARBHJUA AGRO INDUSTRIES PVT. LTD.

SHREE CHARBHUJA AGRO INDUSTRIES PRIVATE LIMITED having CIN U01114RJ2020PTC068344 is 1 years, 10 months & 9 days old Private company incorporated with MCA on 21<sup>st</sup> February, 2020. SHREE CHARBHUJA AGRO INDUSTRIES PRIVATE LIMITED is listed in the class of Private company and classified as Non-govt company. This company is registered at Registrar of Companies(ROC), RoC-Jaipur with an Authorized Share Capital of ₹ 1,00,000 and paid-up capital is ₹ 1,00,000.

The company has 2 directors/key management personal SURENDRA KAMEDIYA, KARPA RAM CHOUDHARY. SHREE CHARBHUJA AGRO INDUSTRIES PVT LTD company registration number is 068344 and its Corporate Identification Number(CIN) provided from MCA is U01114RJ2020PTC068344.

The registered address of SHREE CHARBHUJA AGRO INDUSTRIES PRIVATE LIMITED is f 135, bichhwal industrial area (b i a), bichwal, Bikaner 334001 rajasthan - india.



Figure:36

Shri charbhjua agro industries pvt. Ltd.

## **2.3 INDUSTRIAL LEARNING DETAILS**

### **2.3.1.1 SEED PROCEESING**

**Seed processing:** Seed processing or seed conditioning is the preparation of harvested seed for marketing to farmers. The processes involved include drying, threshing, precleaning cleaning, size grading, treating, quality testing, packaging and labelling.

**Seed definition:** the fertilized ripened ovule of a flowering plant containing an embryo and capable normally of germination to produce a new plant.

#### **PRINCIPLES OF SEED PROCESSING**

Within the seed lot, both the pure seeds and any undesirable materials may present major differences in physical properties:

- size (length, width, thickness)
- shape
- weight/density
- texture (rough, smooth, pointed)
- colour

#### **PURPOSE OF SEED PROCESSING:**

- To lower the cost of further processes likes storage including transport.
- This is achieved by reducing the bulk of the seed lot by cleaning debris and by removing empty or fractured seed (pre- cleaning)
  1. To increase the longevity of seeds; by drying seeds to safe moisture content and treating with protective chemicals
  2. To reduce the variability in vigour by invigorating the seeds and removing the low vigour seeds
  3. To improve the uniformity in seed shape or size by grading or by pelleting.

### **2.3.1.2 CLASSES OF SEED**

1) Nuclear seed:

Nuclear seed is the hundred percent genetically pure seed with physical purity and produced by the original breeder/Institute /State Agriculture University (SAU) from basic nucleus seed stock. A pedigree certificate is issued by the producing breeder.

## 2) Breeder seed:

Breeder seed is produced from nucleus seed under the supervision of a qualified plant breeder in a research institute of Agricultural University. This provide for initial and recurring increase of foundation seed. Breeder seed is monitored by a joint inspection team of scientists and officials of certification agency and National Seed Corporation. The genetic purity of breeder seed crop should be maintained at 100 per cent.

Tag colour: Golden Yellow.

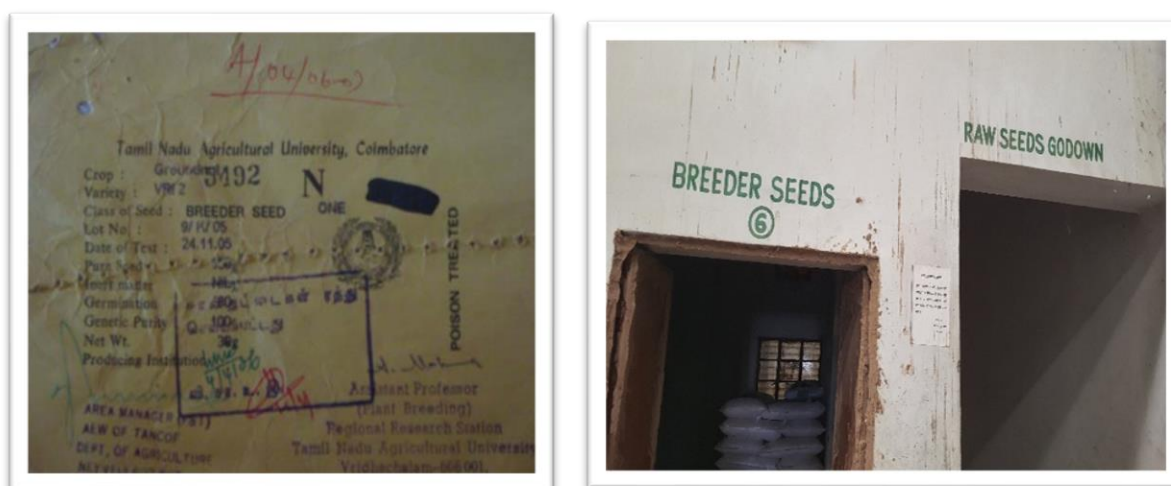


Figure:37

Breeder seed

## 3) Foundation seed

Foundation seed is the progeny of breeder seed and is produced by State Farm Corporation of India, National Seed Corporation, State seed Corporation under technical control of qualified plant breeders or technical officers. Its production is supervised and approved by certification agency. The genetic purity of foundation seed should be maintained at 99.5 per cent.

Tag colour: white

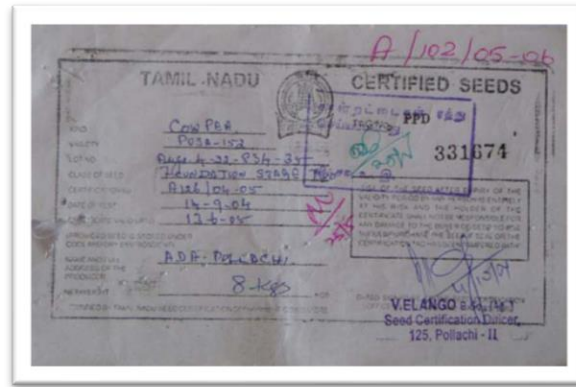


Figure:38

Foundation seed

4) Registered seed:

Registered seed shall be the progeny of foundation seed that is so handled as to maintain its genetic identity and purity according to standard specified for the particular crop being certified. A purple colour certificate is issued for this category of seed.

Tag colour: purple



Figure:39

Registered seed

5) Certified seed

Certified seed is the progeny of foundation seed and its production is supervised and approved by certification agency. The seed of this class is normally produced by the State and National Seeds Corporation and Private Seed companies on the farms of progressive growers. This is

the commercial seed which is available to the farmers and its genetic purity should be 99 per cent.

Tag colour: azar blue



Figure:40

Certified seed

### **2.3.1.3 PROPERTIES OF GOOD SEED**

Quality seed must meet certain quality standards in the laboratory:

- Moisture content (max. %)
- Physical purity (min. %)
- Germination capacity (min. %)
- Seed health (maximum incidence of diseases or insects)
- Genetic or varietal purity (min. %)

### **BENEFITS OF SEED PROCESSING**

In addition to enhanced purity, health and germination, well-cleaned and good quality seeds have other benefits, all of which increase their market value: improved visual appearance, reduced seed rate, uniform emergence and crop stand, high yield and long shelf-life.

### **REQUIREMENT IN SEED PROCESSING**

1. There should be complete separation.
2. There should be minimum seed loss.
3. Upgrading should be possible for any particular quality.
4. There should be have more efficiency.
5. It should have only minimum requirement.



## **TYPES OF MATERIALS REMOVED DURING SEED PROCESSING**

1. Inert materials
2. Common weed seeds
3. Noxious weed seeds
4. Deteriorated seeds
5. Damaged seeds
6. Other crop seeds
7. Other variety seeds
8. Off-size seeds

### **2.3.1.4 TYPES OF MACHINES USED IN SEED PROCESSING**

1. pre cleaner
2. Grader
3. Indented cylinder
4. Gravity separator
5. Elevator
6. Seed treatment machine
7. Well maintain Storage rooms
8. Exhaust fan
9. Weighing machine
10. Cleaning equipment of processing unit

### **2.3.1.5 OPERATIONS ARE FOLLOWED IN SEED PROCESSING**

operations are based on characteristics of seed such as shape, size, weight, length, surface structure, colour and moisture content. Because each crop seed possesses individually seed structure. Therefore, sequence of operation will be applied proper equipments. However, It is also involved stages following as,

- **Drying**
- **Pre-cleaning**
- **Seed grading**
- **Indented cylinder**
- **Gravity separator**
- **Treating (Drying)**

- **Weighting**
- **Bagging**
- **Storage or Shipping**

- **Drying:**

Drying reduces the moisture content of the seed to the recommended levels for seed processing and storage. Drying seeds not only increases longevity in storage, but also prevents attack by pests and pathogens. Seed moisture content is key to the longevity of seed in storage.

High moisture content:

- increases the respiration rate of seeds, raising the temperature within the seed lot to potentially fatal levels;
- causes growth of mould detrimental to the health of the seeds; and
- decrease of percentage of germination.

### **Methods of drying**

I. Physical drying (or) natural drying (or) traditional sun drying

II. Mechanical (or) artificial drying

#### **I. Physical drying / Natural drying / Traditional Sun drying**

This is the common conventional method in which drying of the harvested crop is carried out in the field or threshing floor by the radiant energy of the sun. This does not involve any expenditure. To achieve uniform drying, the seed should be spread in thin layer. High moisture content seed with a moisture content of more than 17% should be dried first under shade / light to reduce the moisture content less than 17% and then dried under heavy sun i.e. noon drying. Sun dried seeds should not be allowed to remain open in the floor during night, since seed will absorb moisture from air. 2-4 days are needed to reduce the moisture content to 10-12%. Direct sunlight also can adversely affect seed germinability owing to high temperature and ultraviolet radiation, especially if the moisture content of the seed is high.



Figure:41

### Traditional sun drying

#### **Advantages:**

1. Easy and cheap
2. Does not require any expenditure or fuel.

#### **Disadvantages:**

1. The rate of drying is slow.
2. Loss due to attack by insects, birds and animals.
3. Large floor area is required.
4. Involves extra labour for collecting and exposing during the day.
5. Sun drying cause sun checks or hot spots due to variation in temperature from time to time. This checks or spots induce high amount of breakage while processing.
6. mechanical admixtures are possible.
7. Dust, dirt and other foreign materials get admixed.
8. High weather risks and damage by heavy wind and rains.

## II. MECHANICAL DRYING OR ARTIFICIAL DRYING

### 1) Forced air drying:

In forced air drying, natural air or air supplemented with heat is blown through a layer of seed until drying is completed. Generally ordinary seed godowns are provided with two types of ventilators for free movement of air circulation. In modern godowns, provisions are to be made for forcible circulation of air with the help of an electronic blower. The outside air which is comparatively dry is circulated in the godown and thereby the seed get dried up in this process. This is possible only in dry months. Two types of driers are used: batch and continuous flow driers.



Figure:42

Forced air drying

### 2) Continuous flow driers In this type of drier:

the seed moves horizontally or vertically through a stream of hot air and then into a cooling chamber. These driers are however difficult to clean when there is a change of cultivar. These driers can use air temperature higher than those of batch driers, because the seed is heated for a much shorter time.

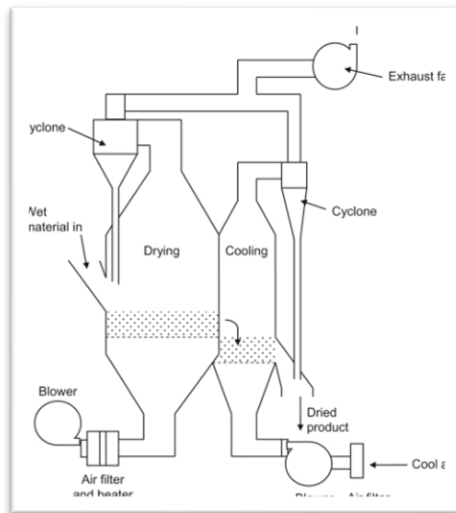


Figure:43

### Continuous flow dryers

#### Advantages over bin dryers

1. Short drying period.
2. Less damages or spoilage during wet weather.
3. Drying is more uniform.

#### Advantage of flow dryers:

1. Quick method, timely and uniform drying is possible.
2. Makes early harvest possible.
3. It reduces the chances of losses due to over ripening and shattering of seed.
4. Losses due to rodents and birds are prevented.
5. Less damage during processing operation.
6. Permits long time storage by preventing sun checks and other damages.

#### Disadvantages of flow dryers:

1. Initial cost of drying the equipment is high
2. Fuel is expensive
3. It produces possible fire hazards
4. Considerable supervision is necessary.

- **PRE-CLEANING**

Pre conditioning refers to **operations such as shelling, debearding, etc.**, that prepare seed lots for basic seed cleaning, and also to the removal of particles such as pieces of trash, stones, clods, etc., larger in size than desirable crop seed, from threshed seed lots.



Figure:44

Pre-cleaning machine

- **FINE CLEANING (SEED GRADING)**

Fine cleaning – or grading–improves the quality of the cleaned seed. Grading aims to achieve the highest possible level of purity and normally targets specific contaminants. The cleaned seed may also be separated by quality (e.g.size, shape, weight/density and colour).





Figure:45

Seed grader machine

○ **INDENTED CYLINDER**

Indented cylinder. This helps to separate seeds according to the length. The equipment consists of a slightly inclined horizontal rotating cylinder and a movable separating trough. The inside surface has small closely spaced hemispherical indentations.



Figure:46

Indented cylinder

## ○ SPECIFIC GRAVITY SEPARATION

This method makes use of a combination of weight and surface characteristics of the seed to be separated. The principle of floatation is employed here. A mixture of seeds is fed onto the lower end of a sloping perforated table. Air is forced up through the porous deck surface and the bed of seeds by a fan, which stratifies the seeds in layers according to density with the lightest seeds and particles of inert matter at the top and the heaviest at the bottom. An oscillating movement of the table causes the seeds to move at different rates across the deck. The lightest seeds float down under gravity and are discharged at the lower end, while the heaviest ones are kicked up the slope by contact with the oscillating deck and are discharged at the upper end. This machine separates seeds of the same density but of different size and seeds of the same size but of different densities.



Figure:47

Specific gravity separation machine

## ○ **TREATMENT**

All possible contaminants have been removed and the seed has been graded; it is now ready for bagging. First, however, consider whether chemical treatment (fungicide or insecticide) is required. Only treat seed if absolutely necessary. Use only properly labelled chemicals, specifically registered for seed treatment. Do not use chemical products not designed for seed treatment. Appropriate treatments stick properly to the seed and have a distinct colour to indicate that the seed has been chemically treated.

Crop protection products come in the form of:

- powders - applied directly to seed (rarely used due to the risk of the operator inhaling the powder); and
- wettable powder/grains or dilutable liquids – mixed with water and applied to seed with specially designed treating machines.

### **Benefits of seed treatment:**

- Protection - of seed - against insect attack during storage.
- Protection - of seeds and seedlings - against attack by soil insects; by soil organisms causing disease; and by other pests (e.g. birds and rodents).
- Control of the spread of plant diseases.
- Improved germination and crop yields.

### **Precautions in seed treatment:**

Although there are significant potential benefits, seed treatment must only be used when necessary. Careful handling is fundamental, because the chemicals may be dangerous to human health. Seed treatment is basically an agronomic issue: faced with a serious pest or disease threat, a simple seed treatment has a potentially dramatic effect on seedling establishment; this may be a good reason for farmers to buy the seed. On the other hand, the threat from insects and diseases may not be serious enough to justify the use of chemicals from both a health and an economic point of view. Use of untreated seed may often be the better option.

### **Method of chemical application:**

- Dusts - dry powder chemicals mechanically applied to the seed. Seed coverage is not uniform and the chemical tends to drift or slide off the seed. Dusts involve the highest level of danger in the processing plant; they float in the air and operators must wear proper masks to avoid inhalation.
- Liquids - true solutions of the chemical dissolved in water. Seed coverage is uniform.

- Slurries - mixtures of water and wettable powders or grains. They are purchased already mixed or can be prepared just before application. Seed coverage is thorough and uniform.



Figure:48

Seed Treatment machine

#### ○ **WEIGHING SCALE**

Weighing must be accurate, as there is a legal responsibility for the weight stated on the label when seed is marketed. Seed or other material is weighed at reception, during processing and at bagging. Weighing scales may be electronic or manual, digital or analogue (dial). popular model is a moveable scale comprising a platform on which the bag is placed, a supporting bar for the bag and a graduated beam with a suspension hook for weights. The platform rests on four castor wheels. A variation of the same scale has a dial instead of the graduated beam.

#### ○ **PACKAGING**

Package the cleaned seed in a suitable material (e.g. polypropylene, paper or jute). Packages must be per unit weight (kg); alternatively, pack the seed in quantities appropriate for sowing

a specific area of land to help farmers decide how much seed to purchase. Select storage and sales packaging from a range of standard sizes and types.

Same-size and same-type containers must have the same weight to simplify the inventory control of seeds in storage.

Packaging material are 3 type-

- Moisture-vapour resistance eg, polythene.
- Moisture-vapour permeable eg, cloth, paper bags.
- Moisture-vapour proof eg, tin cans.



Figure:49

Seed Packing bag

### ○ SEED LABELLING

All seed bags must carry printed information about:

- crop
- variety
- class of seed
- name / address of producer
- physical purity %
- genetic purity %
- moisture %
- germination %
- date of germination
- date of test
- net content



Figure:50

seed label on the bag

## ○ SEED STORAGE

seed storage are the preservation of seeds under controlled environmental conditions which will prolong the viability of the seed for long period.

There are 2 types of storage

- short term storage
- long term storage

### **I. short term storage:**

A range of materials are adopted for short-term seed storage, most of them porous. Inspect regularly for pest outbreaks or other forms of damage. Each material has advantages and disadvantages:

- Jute bags are resistant, can be re-used many times and can be stacked high without slipping. They provide limited protection against moisture and pests.
- Cotton bags can be re-used, depending on the quality of the fabric, but they are not as strong or as tear-resistant as jute. They provide limited protection against moisture and pests.
- Plastic bags (made from woven material) are resistant, but they tend to slip when piled high and are harder to close securely once opened. They provide limited protection against moisture and pests.
- Paper (multi-layered) bags are suitable for packaging larger quantities of seed. They are cost effective for storing small lots of seed, but are generally limited in strength and tend to burst when piled high, accidentally dropped or used repeatedly. Indeed, they should be double or triple layered to prevent bursting. They provide only limited protection against moisture.
- Cardboard boxes and cans are re-usable and good for stacking; they provide good protection against mechanical damage and infestation by seed storage insects, but they are relatively expensive.
- Polyethylene zip lock bags may be used provided the seed has been adequately dried. Indeed, plastics and thin films are not effective moisture barriers (albeit more effective than paper). They are relatively expensive.

### **II. long term storage**



Sealed metal and glass containers are the most commonly used containers for long-term storage. It is imperative, in all cases, that containers are fitted with a rubber gasketed seal in good condition. They can protect seeds against humidity, insects, rodents and mechanical damage. Do not use plastic for long-term storage.

- For large quantities, metal cans fitted with rubber gasketed lids and pressure rings are ideal for storing big seeds (e.g. peas, beans and corn). Large jars with gasketed seals are also excellent; although breakable, glass allows the contents to be easily inspected for insect damage.
- For small quantities, small sealed jars are ideal.

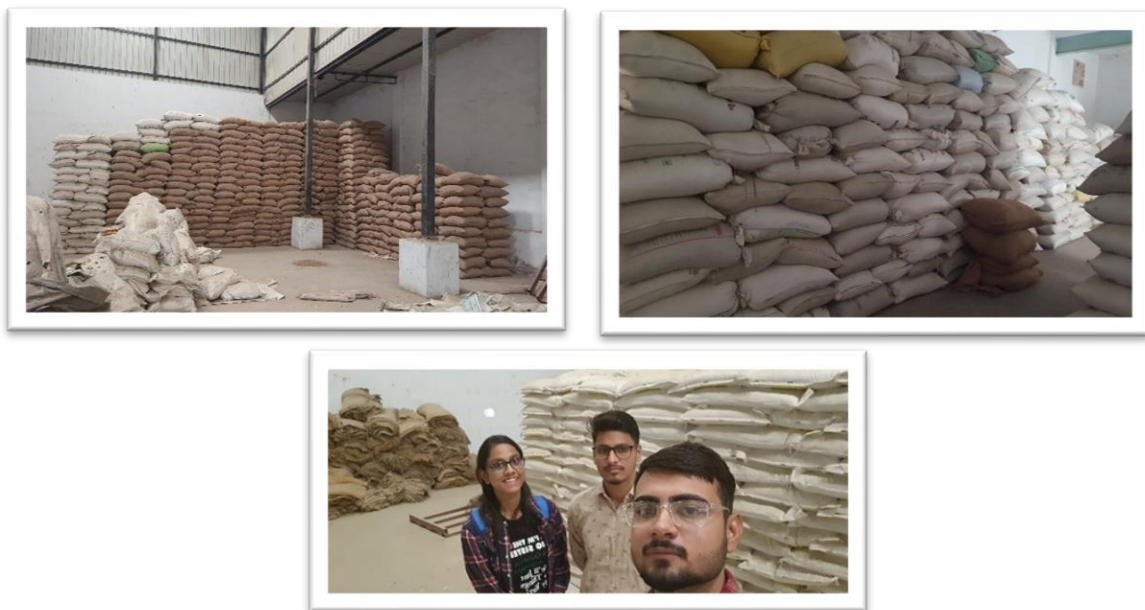


Figure:51

Seed Storage house

#### ○ **STACKING PROCESSED SEED**

Once sewn, take the bags to the finished goods store. Place them on wooden pallets and arrange in an orderly pattern to facilitate counting and inspection. Do not exceed the maximum recommended stack size in terms of number of bags and height of the stack. A stack may sometimes constitute one seed lot. Leave ample space around the stack, between stacks and between the stack and the wall. Small stacks are practical for inspection, counting and fumigation. Label the stack.

Keep the store dry, clean and tidy at all times. Carry out regular inspections for signs of infestation; fumigate with recommended products as necessary. There may be national regulations imposing a maximum weight for seed bags; check with the relevant authorities - typically in the ministry of work, health or agriculture. In any case, it is unlikely that an enterprise would pack seed in bags in excess of a liftable weight (e.g. 50 kg).



Figure:52  
Stacking processed seed

### **2.3.1.6 AIA MANUAL REPORT**

## CHAPTER-3

### 3.1 INTRODUCTION TO IN-PLANT CLINIC

#### PLANT CLINIC

**Plant clinics** are meeting places (mostly operating from local markets, community centres and cooperatives) where farmers who are struggling with any plant health problem can take samples of their ailing crops to trained plant health extension officers (referred to as plant doctors) for free diagnosis.

The main aim of setting up such clinics is **to diagnose pests and diseases in any crop and render accurate knowledge to the farming community**. Basically it is a community-driven model, conducted in a common location, accessible to all categories of farmers in a village.

#### 3.2 OBJECTIVE

1. Reduce crop loss due to insect and disease
2. Minimizing the indiscriminate use of agrochemical
3. Dissemination of appropriate plant protection technology
4. Provide efficient plant health services to the resource poor to commercial growers
5. Provide services on soil health related problems.

#### 3.3 PLANT TRAINING LEARNING DETAILS

1. Commonly used and purchased fertilizers:

- DAP
- MOP
- UREA



Figure:53

Dap

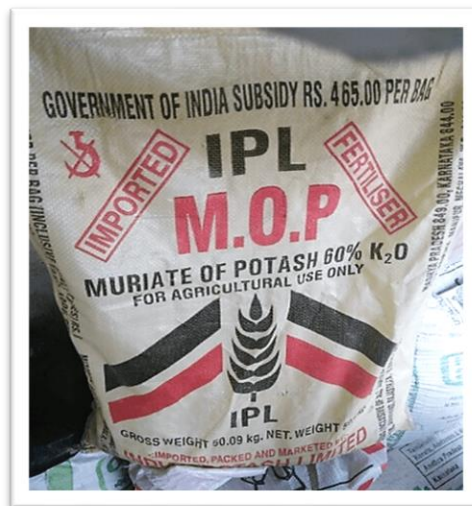


Figure:54

Mop



Figure:55

Urea

2. Commonly used and purchased herbicides:

- **2,4-D** – broad leaf weed control. For example bathua.  
Dose- 5-6 liter/ Bigha
- **Glyphosate** – control broad leaf weeds and grasses.
- **pogo (metsulfuron)** – control hardly leaf weeds especially congress grass (Gujarat grass), Jungli palak.

- **Gramoxone (paraquat salt)** – control of most fibrous rooted grasses and annual broad leaf weed.

Dose: 1 liter in 5-6 bigha.



Figure:56  
2,4-D



Figure:57  
Glyphosate

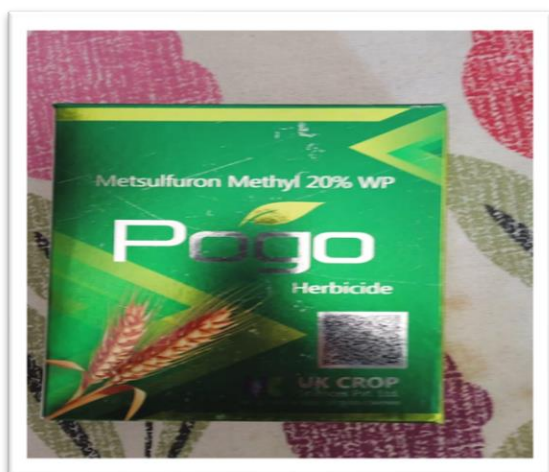


Figure:58  
Metsulfuron Methyl



Figure:59  
Gramoxone

3. In groundnut for termite used insecticides are:

- Chlorpyrifos: 20 EC – 300 ml/ liter.
- 50 EC – 200ml/ liter





Figure:60

Chlorpyrifos

→ Groundnut seed are treated with carbendazim 2-2.5 gm/ kg.



Figure:61

Carbendazim

→ For white gurb mostly used insecticides is – carbofuran 3G – 3-4 kg/ bigha.

4. For jassid, Aphid control in guar commonly used and purchased insecticides by farmers are:



- Thiomethoxam (Actara) – 35% or 70% spray.



Figure:62

Thiomethoxam

- Roger – 3 ml/ liter.



Figure:63

Roger

→ Black leaf spot disease in guar control by coc insecticide also known as blue copper.  
Dose: 1gm / liter.

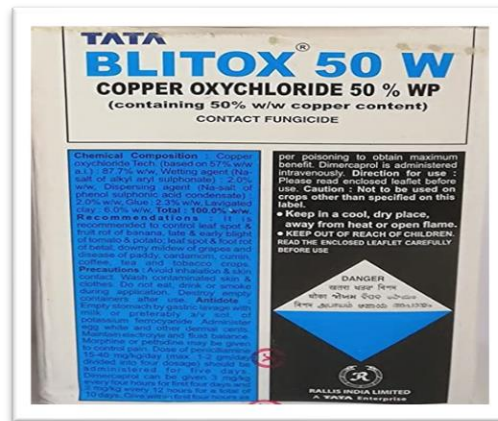


Figure:64

### Copper oxychloride

5. Do any farmer purchase Nano UREA?

No, because have little knowledge about this product.

6. Do farmers purchase any organic fertilizers?

No, mostly prefer buying chemical fertilizers and some purchase micro-food organic fertilizer. Micro-food dose: 1liter for 3 bigha.

## CONCLUSION

It has been an amazing experience during our RAWE, AIA and plant clinic session ((2021-22). We came to experience different aspects of real facts in agriculture which we learned in books. It gives immense pleasure while giving solution to a problem dealing with the farmer. identified various productive resources and improve communication skills by interaction with the host farmer. It offers an opportunity to gain experience of rural area, rural people and their social structure in making extension work successfully. It includes team spirit working in group, time management, and logical approach to problems. And in industrial attachment, we learned about different machines which is used in the seed processing unit. And we also learned about how the seed industry work. In-plant clinic we know about the different type of fertilizer, weedicide, herbicide, insecticide and micro-nutrient. And we also listened to the problems of that farmer. From orientation till submission of report, every moment in RAWE, AIA and plant clinic has been exciting, exploring, adventurous, and\_unforgettable. Special thanks to the respected scientist of rawe and guide of industrial attachment and owner of plant clinic who helped us to gain knowledge and experience.

# WEEKLY PROGRESS REPORT

## RAWE AND AIA

### CHAPTER – I

#### RURAL AGRICULTURAL WORK EXPERIENCE (RAWE)

#### PERFORMA FOR DAILY DIARY OF STUDENT

(To be maintained by the student in ruled notebook)

1. Name Of the Student : Arman Hussain
2. Enrolment No. : Rnbgu201800086
3. Name Of the College : Rnb Global University, Bikaner
4. Name & Address of The Contact Farmer : -
5. Rawe In-Charge And Guide : Dr .M.L Reager
6. Research Station / Kvk : Krishi Vigyan Kendra, Bikaner
7. Abstract Of Work : Learning Field Work at kvk Bikaner

#### WEEKLY REPORT- (WEEK -1)

Work days & Date	Abstract of work done	Signature & Designation of Visitors / Contact Farmer
Monday	-	-
Tuesday [3-08-2021]	Joining and Reporting at KVK, Bikaner	
Wednesday [4-08-2021]	<u>Horticulture-</u>	

	Pruning of Pomegranate Plant	
Thursday [5-08-2021]	<b><u>Horticulture-</u></b> Pruning of Pomegranate Plant	
Friday [6-08-2021]	<b><u>Agronomy-</u></b> Learned to make Field Layout using 3-4-5 Pythagorean Theorem Method	
Saturday [7-08-2021]	<b><u>Agronomy-</u></b> <ul style="list-style-type: none"> <li>• Done Transplanting of Pearl millet</li> <li>• Removed Weeds <i>CYNODON DACTYLON</i></li> <li>• Done seeds sowing of Cucurbits such as Ridged gourd (Turai) , Long Melon(Kakdi), and Watermelon. Using Khera Technique</li> </ul>	
Sunday	-	-

### **WEEKLY REPORT-(WEEK -2)**

<b>Work days &amp; Date</b>	<b>Abstract of work done</b>	<b>Signature &amp; Designation of Visitors / Contact Farmer</b>
Monday [9-08-2021]	Holiday	-
Tuesday [10-08-2021]	<b><u>Agronomy-</u></b> <b><u>Land Preparation-</u></b> <ul style="list-style-type: none"> <li>• Provided Plot area 6× 6 m.</li> <li>• Made bunds on borders of our plot</li> <li>• Did Ploughing of land using Hand harrow</li> <li>• Removed the weeds from the allotted plot</li> </ul>	

Wednesday [11-09-2021]	<b><u>Agronomy-</u></b> Allotted Plot area was properly leveled with the Hand Leveller.	
Thursday [12-08-2021]	<b><u>Agronomy-</u></b> <ul style="list-style-type: none"> <li>• Fertilizers (Urea and DAP) was added on the allotted plot area.</li> <li>• Proper mixing of fertilizer into the soil, then leveling was done, 15 cm lines were made at equal distance on plot</li> <li>• Seed Sowing of 'OKRA in 5 cm depth.' i.e., Bhendi was done.</li> </ul>	
Friday [13-08-2021]	Holiday	-
Saturday [14-08-2021]	Holiday	-
Sunday	-	-

### **WEEKLY REPORT-(WEEK -3)**

<b>Work days &amp; date</b>	<b>Abstract of work done</b>	<b>Signature &amp; designation of visitors / contact farmer</b>
Monday [16-08-2021]	<b><u>agronomy-</u></b> <ul style="list-style-type: none"> <li>• thinning in 'moth bean'</li> <li>• we removed excess plants growing at one place leaving healthy seedling for proper growth and development.</li> </ul>	



Tuesday [17-08-2021]	No work (because of transfer of our guide “dr. Madan lal reagar sir” to lunkaransar)	
<b><u>Raksha bandhan holiday begins from (18-08-2021 to 24-08-2021)</u></b>		
Wednesday [18-08-2021]	holiday	
Thursday [19-08-2021]	holiday	
Friday [20-08-2021]	holiday	
Saturday [21-08-2021]	holiday	
Sunday		

### Performa For Daily Diary of Student

(To Be Maintained by The Student In Ruled Notebook)

1. Name Of the Student : Arman Hussain
2. Enrolment No. : Rnbgu201800086
3. Name Of the College : Rnb Global University, Bikaner
4. Name & Address of The Contact Farmer : -
5. Rawe In-Charge And guide. : Dr. Keshav Mehra
6. Research Station / Kvk : Krishi Vigyan Kendra, Bikaner
7. Abstract Of Work : Learning Field Work At Kvk, Bikaner

### **WEEKLY REPORT-(Week -4)**

Work Days & Date	Abstract Of Work Done	Signature & Designati on Of
------------------	-----------------------	--------------------------------------

		<b>Visitors / Contact Farmer</b>
Monday [23-08-2021]	Holiday	-
Tuesday [24-08-2021]	Holiday	-
Wednesday [25-09-2021]	<ul style="list-style-type: none"> <li>• Reporting At KVK,Bikaner</li> <li>• Training Under New Guide Dr. Keshav Mehra Sir</li> <li>• General Introductory Class</li> </ul>	
Thursday [26-08-2021]	<ul style="list-style-type: none"> <li>• Celebrated 'Food And Nutrition Day For Farmers <b><u>(General Discussion Was Made)</u></b></li> <li>• Extempore Organized By Sir.</li> <li>• <b><u>Theory Class Was Conducted By Dr. Keshav Mehra Sir- (Entomology)</u></b> Discussion On 'Pests of Groundnut'</li> </ul>	
Friday [27-08-2021]	No Work	
Saturday [28-08-2021]	Holiday	-
Sunday	-	-

### **Weekly Report-(Week – 5)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designati on Of Visitors / Contact Farmer</b>
Monday (30-08-2021)	Holiday (Janmashtami)	-

Tuesday [31-08-2021]	Discussion About Village Allotment And Field Training With Sir.	
Wednesday [1-09-2021]	Holiday	
Thursday [2-09-2021]	Holiday	
Friday [3-09-2021]	<ul style="list-style-type: none"> <li>Farmer Was Allotted To Us By Sir For Village Attachment Training</li> </ul> <p><b><u>Entomology:</u></b></p> <ul style="list-style-type: none"> <li>Insect-Pest Identification In Cotton Crop (Identified White Flies, Jassids And Aphids)</li> </ul>	
Saturday [4-09-2021]	Holiday	-
Sunday [5-09-2021]	Holiday	-

**Weekly Report-(Week – 6)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [6-09-2021]	<p><b><u>Entomology-</u></b> General Discussion By Dr. Keshav Mehra Sir On Grasshopper And Locust.</p> <p><b><u>Agronomy:-</u></b></p> <ul style="list-style-type: none"> <li>Insecticide Spraying Using Drone In The Groundnut Field Was Done At Field Of Kvk, Bikaner.</li> <li>Insecticide ‘<b>Emacectin Benzoate 5sg</b>’ Was Used In The Groundnut Field To Control Foliage Feeders.</li> <li>Live Demonstration Of ‘<b>Drone Technology</b>’</li> </ul>	-

	At Kvk, Bikaner By 'Garuda Aerospace' Team From Chennai.	
Tuesday [7-09-2021]	Holiday	
Wednesday [8-09-2021]	Holiday	
Thursday [9-09-2021]	Holiday	
Friday [10-09-2021]	Visit To Our Farmer Field For Village Attachment Training Programme In Akkasar Village.	
Saturday [11-09-2021]	Holiday	-
Sunday [12-09-2021]	-	-

### **WEEKLY REPORT-(Week – 7)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [13-09-2021]	Going To Farmers Field	-
Tuesday [14-09-2021]	Holiday	
Wednesday [15-09-2021]	Going To Farmers Field	
Thursday [16-09-2021]	Holiday	
Friday [17-09-2021]	Vegetable Seeds Distribution Program At KVK, Bikaner-I	
Saturday [18-09-2021]	Holiday	-
Sunday [19-09-2021]	-	-

### **WEEKLY REPORT-(Week – 8)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [20-09-2021]	Field Work (Village Attachment).	-
Tuesday [21-09-2021]	Field Work (Village Attachment).	
Wednesday [22-09-2021]	Field Work (Village Attachment).	
Thursday [23-09-2021]	Field Work (Village Attachment).	
Friday [24-09-2021]	Field Work (Village Attachment).	
Saturday [25-09-2021]	Field Work (Village Attachment)	-
Sunday [26-09-2021]		-

**WEEKLY REPORT-(Week – 9)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done (Work At Farmer's Field)</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [27-09-2021]	Field Work (Village Attachment)	
Tuesday [28-09-2021]	Field Work (Village Attachment)	
Wednesday [29-09-2021]	Field Work (Village Attachment)	
Thursday [30-09-2021]	Field Work (Village Attachment)	
Friday [1-10-2021]	Field Work (Village Attachment)	
Saturday [2-10-2021]	-	-
Sunday [3-10-2021]	-	-

**WEEKLY REPORT-(Week – 10)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [04-10-2021]	No Work	
Tuesday [05-10-2021]	No Work	
Wednesday [06-10-2021]	No Work	
Thursday [07-10-2021]	No Work	
Friday [08-10-2021]	No Work	
Saturday [09-10-2021]	-	-
Sunday [10-10-2021]	-	-

**WEEKLY REPORT-(Week – 11)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [11-10-2021]	No Work	
Tuesday [12-10-2021]	Visit To Farmer's Field (Husangsar) For A Program Waste To Wealth With Dr. Keshav mehra Sir.	
Wednesday [13-10-2021]	No Work	
Thursday [14-10-2021]	No Work	



Friday [15-10-2021]	No Work	
Saturday [16-10-2021]	No Work -	-
Sunday [17-10-2021]	-	-

**Weekly Report-(Week – 12 &13)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [18-10-2021]	Nursery Visit	
Tuesday [19-10-2021]	Nursery Visit	
Wednesday [20-10-2021]	Nursery Visit	
Thursday [21-10-2021]	Nursery Visit	
Friday [22-10-2021]	Nursery Visit	
Saturday [23-10-2021]	Nursery Visit-	-
Sunday [24-10-2021]	-	-
Monday [25-10-2021]	Marushakti Visit	
Tuesday [26-10-2021]	Holiday	
Wednesday [27-10-2021]	Holiday	
Thursday [28-10-2021]	Holiday	
Friday [29-10-2021]	Holiday	
Saturday [30-10-2021]	Holiday	
Sunday [31-10-2021]	Holiday	

## CHAPTER – 2

### AGRO INDUSTRIAL ATTACHMENT (AIA)

#### PERFORMA FOR DAILY DIARY OF STUDENT

(To be maintained by the student in ruled notebook)

1. Name Of The Student : ARMAN HUSSAIN
2. Enrolment No. : RNBGU201800086
3. Name Of The College : RNB GLOBAL UNIVERSITY, BIKANER
4. Aia In-Charge And Guide : Dr. GYAN SINGH MEENA
5. Industry Name : Shri Char Bhuja Agro Industries Pvt. Ltd.
6. Abstract Of Work : Learning About Seed Processing Unit At  
Industry, Bikaner
7. INDUSTRY ADDRESS :F-135, RIICO Industrial Area, Beechwal,  
Bikaner.

#### WEEKLY REPORT-(WEEK -1)

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [15-11-2021]	-	-
Tuesday [16-11-2021]		
Wednesday [17-11-2021]	<b>Examination At Kvk, Bikaner</b>	
Thursday [18-11-2021]	-	
Friday [19-11-2021]	Guru Nanak Jayanti Holiday	-

Saturday [20-11-2021]	-	-
Sunday	-	-

### **WEEKLY REPORT-(WEEK -2)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
Monday [22-11-2021]	Reporting At Shri Char Bhuja Agro Industries	-
Tuesday [23-11-2021]	No Work	
Wednesday [24-11-2021]	No Work	
Thursday [25-11-2021]	No Work	
Friday [26-11-2021]	Attendance Was Marked	-
Saturday [27-11-2021]	Holiday	-
Sunday	-	-

### **WEEKLY REPORT-(WEEK - 3)**

<b>Work Days &amp; Date</b>	<b>Abstract Of Work Done</b>	<b>Signature &amp; Designation Of Visitors / Contact Farmer</b>
-----------------------------	------------------------------	---

Monday [29-11-2021]	<ul style="list-style-type: none"> <li>• Learned About Different Seed Processing Machines Such As: - Pre-Cleaner, Grader, Indent Cylinder And Gravity Cleaner.</li> <li>• Also Learned About Different Classes Of Seeds And Tags, Seed Treatment, Stacking Of Grain Bags, Fumigation For Pest Control And Storage Grain Pests.</li> </ul>	-
Tuesday [30-11-2021]	Holiday	
Wednesday [1-12-2021]	Holiday	
Thursday [2-12-2021]		
Friday [3-12-2021]		-
Saturday [4-12-2021]		-
Sunday	-	-