

Proposal by:

Shri Jagdishprasad Jhabarmal Tibrewala University,
Rajasthan (Id: U-0423) 2019-03-05

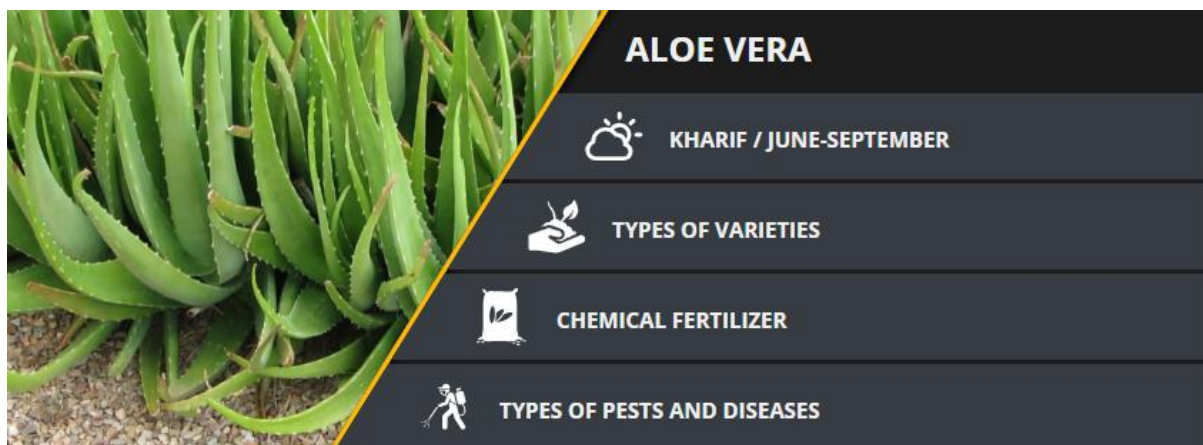
Title of the work:

Aloe Vera Plantation





Village where it is to be implemented:

Rijani

Brief description and Significance of the Project:



There is end numbers of benefits of Aloe Vera and used in various purposes. Here in UBA project we have decided to plant Aloe Vera in Rijani Village. Basic idea behind selection of aloe Vera is medicine benefits to the society and being reason for future employability or setting platform for entrepreneurship. It derives its name "Aloevera" from arabic word Alloeh which means shining bitter substance. The inner part of leaf which contains gel and latex are used for preparing various medicines. It contains Vitamins A, B1, B2, B6, B12, Folic Acid, Niacine. Medicines prepared from Aloevera used for burns and sunburn, as well as a variety of skin diseases like eczema, pruritus, psoriasis, acne etc. It is stemless plant with average height of 24cm-39cm having thick and fleshy leaves. The leaves attain the height of 0.5m. The major planting areas of Aloevera are India, Australia, USA, Japan and Europe. In India it is found in Punjab, Andhra Pradesh, Arunachal Pradesh, Assam, Gujarat, Haryana, Jharkhand, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Orissa, Rajasthan, Uttaranchal states. Following things have to be taken care before and after plantation of Aloe Vera plants.

CLIMATE			
			
Temperature	Rainfall	Sowing Temperature	Harvesting Temperature
25-40°C	35-40cm	30-35°C	25-35°C

SOIL

The plant can be grown in a variety of soils ranging from sandy coastal soils to loamy soils of plains. It cannot withstand in water logging conditions. It gives best results when grown under well drained loam to coarse sandy loam having pH ranges up to 8.5.

POPULAR VARIETIES WITH THEIR YIELD

There are around 150 species of Aloe belonging to family Liliaceae. Out of which Aloe barbedensis, A. chinensis, A. perfoliata, A. vulgaris, A. indica, A. littoralis and A. abyssinica are commonly grown varieties and have most therapeutic value.

IC111271, IC111269, IC111280, IC111273, IC111279 and IC111267:-Released by National Botanical and Plant Genetic Resource, ICAR, Delhi. It has high aloin content.

IC111267, IC1112666, IC111280, IC111280, IC111272 and IC111277:- Released by National Botanical and Plant Genetic Resource, ICAR, Delhi. It contains high gel contents.

AL-1:- Released by Central Institute of Medicinal and Aromatic Plants, Lucknow.

LAND PREPARATION

Roots of Aloe vera did not penetrate below 20-30 cm so depending upon soil type plough the land thoroughly and bring soil to fine tilth. At time of last ploughing add 6 ton per acre of well decomposed cow dung in soil. Form ridge and furrow for planting of suckers at 45 or 60 cm apart. If necessary irrigate the field. Plant suckers at 40 or 30 cm apart.

SOWING

Time of sowing: Plant suckers in July-August for better growth. Under irrigated conditions, sowing can be done around the year except in winter month.

Spacing: Normally spacing of 45 cm x 40 cm or 60 cm x 30 cm is followed.

Sowing Depth: Plant three to four month old suckers in a pit having depth of 15 cm.

Method of sowing : Parts used : Aloevera is obtained by cutting the leaves at their base and letting yellow, bitter Juice drain out. The water is evaporated off from the juice by heating and that result to light to dark brown mass.

SEED

Seed Rate : Usually about 22000 suckers are required for one acre land.

Seed Treatment : Use healthy suckers for cultivation. 3-4 months old suckers having 4-5 leaves are used as planting materials.

Fertilizer Requirement (kg/acre)		
UREA	SSP	MURIATE OF POTASH
44	125	34

Nutrients Requirement (kg/acre)		
NITROGEN	PHOSPHORUS	POTASH
20	20	20

At time of land preparation, apply 60-80 qtl per acre of well decomposed cow dung. Apply basal dose of N:P:K@20:20:20 kg/acre in form of Urea@44 kg, Super Phosphate@125 kg and MOP@34 kg per acre. (Mixture use will be depending on the exact plantation of Aloe Vera quantity).

WEED CONTROL

Do weeding and earthen up and keep field weed free. Weeding is to be done at proper intervals. Weeding is mainly done twice in a year.

IRRIGATION

In summer or dry conditions, apply irrigation with interval of 2 weeks. In rainy season, it does not require any irrigation and in winter season, less irrigation should be given as the plant not take up much water. First irrigation must be done immediately after suckers get planted. Do not overwater the fields as they are harmful for crops. Remember that before watering the crops again let fields dry first. Before irrigation drenching should be done so that extra water will runs out.

An Ideal Climatic Conditions for Aloe Vera Farming

- Check region offers a dry climate with minimal rainfall or a warm humid one.
- If the answers are in the affirmative, plants will grow well.
- Wherever the annual rainfall remains between 50 mm and 300 mm, Aloe Vera plants are bound to flourish!
- Aloe Vera plants cannot tolerate extremely cool conditions.
- They cannot survive in 'frosty' weather or in winter.

Selecting the Land

In discussion with Sarpanch and Gram sevak we will select land to grow this plantation. A two-acre field should suffice in the initial stages.

- The soil may be sandy (as in the coastal regions) or loamy (as on the plains).
- Even well drained, black cotton soils prove to be highly suitable. These heavy soils with medium fertility encourage rapid growth.
- Aloe Vera plants are not sensitive to the high presence of potassium or sodium salts in the soil.
- They are capable of tolerating a higher pH (8.5), unlike many other plants.
- Whatever be the type of soil present on land, it should not allow water to stagnate.
- In the absence of water logging, Aloe Vera plants exhibit higher foliage.
- It would help to have land at a slight height from the ground level. This will prevent the stagnation of rainwater.

Need for customisation and Present status:-

Preparing the Land

It would be ideal to schedule for Aloe Vera farming prior to the monsoons, if in India. In other words, farmer should plow the soil before the beginning of the rainy season.

- Ensure that plowing is so thorough that the soil particles appear fine and well separated from one another.
- It is imperative to keep this soil well drained too.
- Maintaining furrows and ridges should make the field ideal for plantation.
- Test the pH and the salt contents of the soil. The former should be around 8.5, while the latter should be in the higher range.
- Would like to increase the fertility of the soil? Well, then, go in for 10 to 15 tons of farmyard manure per hectare.
- Do the same thereafter, every subsequent year.
- Keep using compost throughout every year.
- Then again, farmer may opt for a ratio of 50:50:50 kg per hectare of sodium, phosphorus and potassium salts, to serve as a basal dose.
- Farmer must keep the soil well irrigated, but not overfed with water.

- The plants crave for water immediately after they ground themselves firmly into the soil, as well as, throughout the summer season.
- Their succulence helps them to survive in 'waterless' conditions during the winter season.



Propagation of Aloe Vera Plants

Aloe Vera plants do not produce seeds for planting directly into the soil. Instead, farmers must propagate them.

- When farmer observe the parent plant carefully, and should be able to observe some 'baby' plants growing from it.
- These are the offshoots or offsets, commonly known as Aloe Pups.
- They share the same root system as the parent plant does.
- Whenever the Pup has grown to one-fifth the size of its parent, or has a few sets of leaves sprouting from it, and may remove it.
- Examine it carefully, remove the dirt around the base, and decide the ideal place for separating it from the parent plant.
- The Pup should exhibit a complete root system, after detach it.
- Plant this Pup in a mixture of potting soil and sand.
- Water it only after a week.
- When it is of the right size, move it to the field.
- Another method is to dig out the underground rhizome.
- Cut it to a length of 12 to 15 cm.
- Ensure that this stem has two or three nodes on it, at least.
- Place it in a sand bed, similar to the placement of a root in soil.
- Alternatively, grow it in a container.
- When sprouts appear, take out the plant allot it an appropriate place in field.
- Use root suckers too, instead of the rhizome, by digging them out from the parent plant.
- Plant these root suckers, such that the separation lies in the 50 x 45 cm range.
- Whatever use, ensure that two-thirds of the propagated plant remains underground.

Protecting the Plants

University will create awareness amongst the villagers about necessary information Aloe Vera plants have their own enemies.

- One is the Mealy Bug, wherein the leaves become spotted. This is a fungal disease.
- Once a week, spray 0.2% dithane M-45 onto the plants.
- Spraying of an aqueous solution of 0.2% of Malathion and 0.1% parathion keeps unwanted plants away.
- Farmer needs to remove the weeds manually too, during the first year.
- During subsequent years, may adhere to two weeding sessions and light hoeing throughout the year.
- Keep the soil healthy via earthing up, spading, etc.

Harvest Plants

Wait for eight months or so, and observe the results! They should be perfect, provided to have followed all the instructions, the harvesting is labor-intensive, but well worth the effort!

- The time is exactly right, when view fleshy and thick leaves all over the field.
- Farmer may harvest the plants thrice in a year.
- Farmer cannot use machines or tools for harvesting; it has to be manual in nature.
- It is important that the broken rhizomes remain in the soil, for re-sprouting.
- Then again, farmer must remove just three or four leaves from each plant, during the harvest season.
- This is for allowing the leaves to regenerate from these scars.
- Conduct the harvest only during the morning and evening hours.

During the first year, may witness a yield of 50 or 55 tons of fleshy and thick Aloe Vera leaves from a plantation measuring one hectare. In fact, even if farmer obtain a conservative 40 tons, it is good. Cover up the so-called loss by selling the side suckers from 50% to 60% of plants every year. One need to have no fears for the next four years, for the yield is only bound to become better and better. On an average, two acres of land yield 8,000 to 10,000 kg of Aloe Vera plants.

Irrigation and pest control:-



After proper plantation the irrigation must be done as per the moisture content of the soil. Pest control is also very necessary step to be taken in order to avoid damage to the plant. Mealy Bug is the major threat to the aloe vera crop and

the major disease is the spotting of leaves.

So for the aloe vera weeding plan proper spraying of 0.1% of parathion or 0.2% of malathion aqueous solution is needed. Also 0.2% dithane M-45 spraying should be done weekly to prevent from leaf spot.

Aloe Vera harvesting:-

If everything is done as prescribed above there would be a very profitable harvesting time. In almost 8 months first harvesting can be done. Manual harvesting is needed as the broken rhizome left in the soil will sprout again so special attention must be taken while harvesting the aloe vera plant. From the second year there would be a commercial yield of aloe vera crop and will last upto 5 years. So from the second year the profit margin will grow unexpectedly. An average of 8,000 to 10,000 kg of aloe vera crop is obtained from 2 Acre of land.

Cost of the facility:

Rs.100000

Role of Institute:

University will support and guide to selected villagers for cultivation of Aloe Vera and also try to avail the market to product for final sell. To generate more employment institute will promote for Aloe Vera planation and its sell in requisite place. Will make villagers aware about Pricing and Profit in Aloe Vera Farming Business

Target the pharmaceutical, cosmetic and herbal products establishments via marketing strategies. In fact, Villagers may contact every company in person, carrying along a few samples. At the same time, awareness also create amongst the youth to promote and sell produce plants online through shopping giants like Amazon, Flipkart, etc. may create own website too, for reaching out to consumers directly, without needing intermediaries.

Activity	Month (5 to 6 months)		
	July2019	August2019	Sept. 2019
Plan Execution			
Implementation and Training			
Monitoring			

Reach Market			
---------------------	--	--	--

Future prospects of the work:

Aloe Vera plantation has great demand in market. And here is large scope for sell for Aloe Vera. One can able to earn anywhere up to twenty thousand rupees, or even more, for every ton of Aloe Vera, in the Indian marketplace. Thus, even with a minimal investment of 40,000 to 50,000 rupees at the initial stage, one can stand to walk away with a huge profit, year after year.

Aloe Vera has good future prospect. Currently, the Indian marketplace is ready to pay anywhere between eight to ten lakhs of rupees for 40 to 45 tons of thick and succulent leaves! Think of how much can earn two years later, when the yield goes up to 60 tons or so!

Availability of any other funding:

No

Details of the funds raised from other agencies:

Not applicable

Duration of the work:

5-6 months