

Proposal by:

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Rajasthan (Id: U-0423) 2019-03-05**

Title of the work:

Onion Farming / Cultivation

Village where it is to be implemented:

Hansasari

Brief description of the problem and Significance of the Project:

Onion belongs to the family Amaryllidaceae with botanical name *Allium cepa*. Areawise India ranks second while production wise it ranks third among the total onion production in the world. In the world total area under cultivation of onion is about 19,77,000 hectare which gives 2,79,18,000 mt. Major producing countries are North America, Japan, Spain, Netherland, Canada, etc. while in India it is grown in Gujarat, Punjab, Haryana. Area under cultivation in Maharashtra is about 54,600 hectare. An ideal soil should have pH in between 6.5 to 8. Onion requires well drained loamy soils, rich in humus, with fairly good content of potash. The crop raised on sandy or loose soil does soils, the bulbs produced are deformed and during harvesting, many bulbs are broken and bruised and so they do not keep well in storage.



Need for customisation and Present status:-

Soil suits for Onion farming

Onions can be cultivated in a wide range of soils from sandy loam to clay loam with good drainage facilities. The optimum pH would be 6.5-7.5

Suitable climatic conditions for Onion growth

It is adapted to temperature range of 13-24 C for vegetables stage and 16-21 C for the bulbing stage, 30-35 C at maturity and harvest. The best performance can be obtained in mild weather without the extremes of cold, heat and excess rainfall.

Season	Kharif Season	May-September	Onion only
	Late Kharif Season	August – February	Onion only
	Rabi Season	October -April	Onion and Garlic

Onion seed rate / quantity per hectare

7 to 9 kg/ha.(Note: 1ha = 2.48 acres)

Nursery raising of Onions

Seeds are sown on raised beds of 1.2 m width and 3-4 m length. The seedlings will be ready for transplanting in 45-50 days after sowing

Preparation of soil or field

Plough the land to get fine tilth and incorporate FYM 20 tonnes/ha or 10 tons FYM and 5 tons poultry manure or vermicompost at the time of last ploughing. Form flatbed or broad-based furrow (BBF) for planning.

Spacing: 15 X 10 cm for both

Fertilizer	Kharif season Onion	100:50:50:50 kg NPKS/ha
	Late kharif Onion	150:50:50:50 kg NPKS/ha
	Rabi season Onion	150:50:80:50 kg NPKS/ha

Apply 50% N and 100 % P,N & S as basal dose and remaining 50% of N to be applied in two splits at 30 & 45 days after transplanting. The top dressing must be completed before bulb development.

Irrigation in Onion farming

Irrigation is necessary at the time of transplanting/ dibbing of cloves and light irrigation should be done on the third day after planting and subsequent irrigation will be done at 7-10 days interval depending upon the soil condition and season. Water the transplants immediately after planting. Because of the shallow root system. Onions require frequent furrow irrigation. Avoid overhead irrigation, which causes foliage diseases. If the foliage has an unhealthy, yellowish tint the plants are being over-irrigated. The soil will be overly dry around an under-watered crop and may become cracked. Onions generally require 30” of irrigation during a growing season and the closer to harvest, the greater

the need for water. If the onion does not get enough water it will not make a large bulb. When the necks start falling over and the onions mature, watering should be discontinued and the soil allowed to dry.

Micro irrigation and fertigation in Onion farming

By using drip and sprinklers, irrigation should be done once in three days. The operating pressure for a drip system is 1.5kg/cm² and for the rotary micro sprinler is 2.5kg/cm². Through drip, fertigation should be done by using nitrogen fertilizers (Urea). Apply 50% N as basal dose and remaining 50% of N to be applied in seven splits (10 days interval up to 70 days after transplanting) through the drip irrigation system.

Weed control and management in Onion farming

The crop should be kept weed free for good bulb yield. For the transplanted onion, pre-emergence application of Oxyfluorfen (Stomp) 3.5 l/ha combined with one hand weeding was found effective in both Kharif and Rabi seasons.

For onion nursery and direct seeds crop, application of Pendimethalin @ 3 ml/ litre just after sowing is found best in controlling weeds without affecting the germination, seeding growth and final stand.

Cropping rotation

Crop rotation is very important in onion farming process Soybean in Kharif season is the best cop rotation which improve soil fertility as well as monetary returns.

Harvesting, yield and storage of Onions

Onions should be harvesting at 50 % neck fall stage. Follow harvesting of onion bulbs at the right stage of maturity. It is important in deciding the storage life of onion as bulbs may be stored for about six months.

The onion bulbs, reach maturity hen the plants cease to produce new leaves and roots. In onion, neck fall is the indication of maturity. Time of harvesting depends on several factors tike planting season, cultivar, market price and condition of the crop. In general, when about 50% neck fall is seen crop is harvested. Onion for storage should be fully developed. Thick-neck bulbs which result due to premature harvesting do not store well. Late harvesting leads to increased respiration, subsequent susceptibility to diseases and excessive sprouting during prolonged storage and left in field sunburn is also noticed. Bulbs are harvested. Kharif crop, since the growth continues forced toppling should be taken up to growth 15 days before harvesting. Onion along with tops are kept in the field for 2-3 days, curing for 3-4 days is necessary to remove excess moisture from outer skin and neck to reduce shrinkage and development of colour in storage.

Yield	Onion (Kharif)	15-20 t/ha
	Onion (Late Kharif)	30-35 t/ha

	Onion (Rabi)	25-30 t/ha
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Cost of the facility:

Rs.100000

Role of your institute:

University will provide complete support till enduring the project of onion cultivation successfully; institute role will take care of all following elements of this project: To study Climate and Soil suitable for Onion cultivation. Which varieties of plant can cultivate within approximate duration. What are planting strategies need to be followed. Collaborated expert guidance providing while cultivation and in all required suitable process. Study and support will be provided to measures applicable number of seeds and fertilizer during the cultivation process. And also provide support to find and reach the market for produce onions for better ROI.

Activity	Month (3-5 Cultivation / Farming)		
	June 2019	July 2019	August-oCT 2019
Plan Execution			
Implementation and Training			
Monitoring			
Reach Market			

Impact of this work and Future prospects of the work:

Hansasari is village of allotted under UBA and with this project under Onion plantation production will help to increase the scope for employment and trends to enter for the entrepreneurship in way to find market and understand the market of current trend to enhance the capability to enter in to agriculture and helps to generate revenue through this project implementation in order to achieve maximum ROI. This will help to increase

ultimate resource of income to villagers if they could understand the profitability in cultivation and production through Onion plantation.

Availability of any other funding:

No

Details of the funds raised from other agencies:

Not applicable

Duration of the work:

3 to 5 months