

Olive Cultivation

an Innovative Project



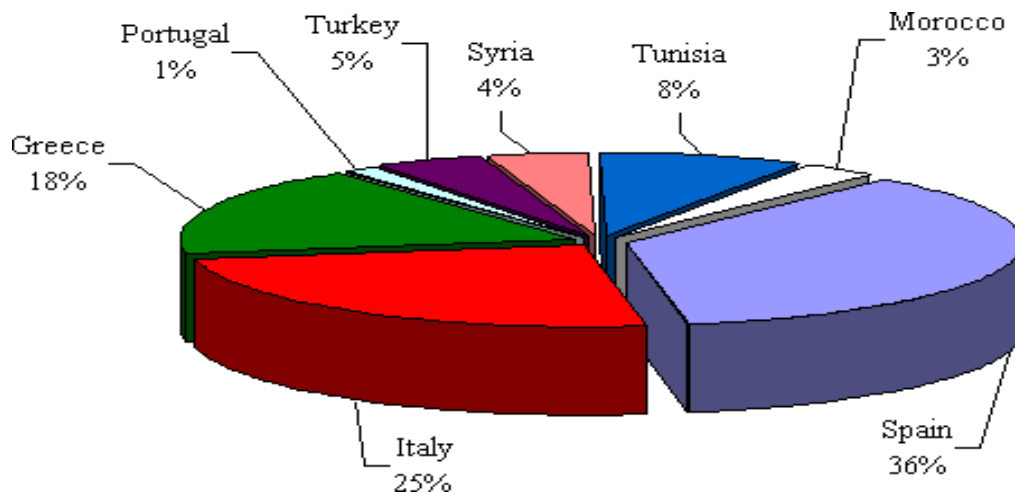
CATEGORY: - HORTICULTURE

Introduction

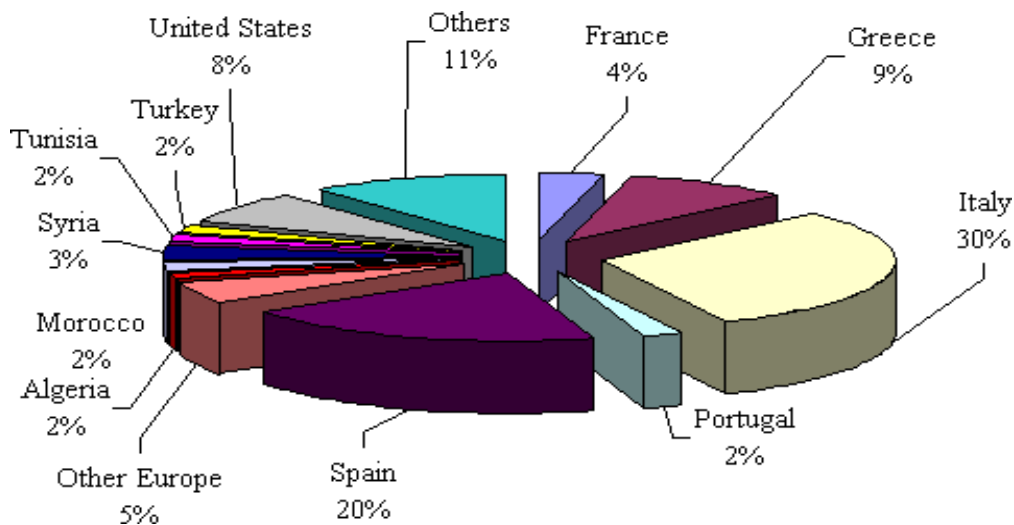
Olive was native to Asia Minor and spread from Iran, Syria and Palestine to the rest of Mediterranean basin 6000 year ago. It is among the oldest known cultivated trees in the world, being grown before the written language was invented.

The word “**Olive**” derives from Latin word OLIVA. Olive (*Olea europaea subspecies europaea var. sativa*) is an evergreen tree or shrub and rarely exceeds 8-15 m in height. Olive is known as symbol of peace & prosperity the olive tree is one of the plants, mentioned in the Bible & the Quran. Olive can live more than 1000 years. The tree has characteristics of wind pollination and diploid, propagated by cutting or grafting, self incompatible and male often sterile.

Olive is mainly produced in Spain, Italy, Greece, California, Tunisia, Portugal etc.



Olive is also a main component in Mediterranean diet.



CHALLENGE:-

A report of World Health Organization (WHO) in 2005 has reported that cardiovascular diseases are the main cause of death in India, and about 52% of total causality under this category is happening in India only. They call India as a capital of Heart Attackers. It has been further notified that 1.7 Million Indian was killed by heart diseases in 2016.

TOP TEN CAUSES OF DEATH IN INDIA

(Age 25 to 69 as percentage)				
Rank	Cause of Death	Male	Female	Total
1	Cardiovascular diseases	26.3	22.5	24.0
2	respiratory diseases	10.1	10.4	10.2
3	tuberculosis	11.4	8.3	10.1
4	Malignant and other Tumors	7.8	11.8	9.4
5	Defined conditions	4.8	6.0	5.3
6	Digestive diseases	6.1	3.5	5.1
7	Diarrheal diseases	4.0	6.6	5.0
8	Unintentional injuries	5.0	4.1	4.6
9	Intentional self-harm or suicide	3.3	2.6	3.0
10	Malaria	2.4	3.4	2.0

Source – ICICI Lombard

Why Olives in Rajasthan

- Some of the leading experts believe that the conditions of Rajasthan are suitable for Olive Cultivation.
- Olive is one of the best alternative remuneration option for crop diversification to farmers of the state.
- Israeli technology and operation modules can be replicated in other crops.
- The demand of Olive oil exceeding supply.
- Health benefits.

INITIATIVE:

During the visit of honorable Chief Minister of Rajasthan to Israel, it has been observed that Olive can be a Potential crop for north Rajasthan. After accessing the suitability of its cultivation it seems to be best options for diversification of agriculture, additional source of agriculture income in sandy soils, increase in rural employment, reduce desertification etc.

After accessing all the parameters it was decided by the Government of Rajasthan to establish pilot plantation on Olive under Public- Private- Partnership to study technical feasibility and economic viability of Olive cultivation in Rajasthan.

Uses of Olive

1. Olive Oil is mainly used for food consumption.
2. Pomace obtained from oil production as by product is a excellent source for live stock feeding and industrial applications.
3. Olive fruit are used for table consumptions.



Olive oil health benefit

1. The greatest exponent of mono unsaturated fat is Olive Oil.
2. Olive Oil is natural juice which preserves the taste, aroma, vitamins and properties of Olive fruits.
3. The beneficial health effects of olive oil are due to both, its high content of mono unsaturated fatty acids mainly oleic acid and anti oxidative substances.
4. Studies have shown that olive oil offers protections against heart disease by controlling LDL (“Bad”) cholesterol level and raising HDL (“Good”) Cholesterol.
5. Studies have shown that olive oil provide protection against Ulcers and Gastritis,
6. Olive oil activates the secretion of bile and pancreatic hormones much more naturally than prescribed drugs. Consequently it lowers the incidence of gallstone formation.
7. The presence of Omega – 9 prove long lives.



PROJECT EXECUTION:-

This project was started under Rashtriya Krishi Vikas Yojana with an objective to study technical feasibility and economic viability of Olive Cultivation in Rajasthan. Since Olive is new crop for India hence in order to start with international standard, an Israeli Managing Director was appointed. The other steps of execution are as under:

1. 1,12,339 Saplings of 7 olives varieties viz Barnea, Arbequina, Cortina, Koronoiki, Picual, Frontio and Picholine were imported from Israel.

2. Seven Olive farms had been developed on state owned land in various agro climate zones with a total area of 182 hectare.
3. Olive Plantation are laid under most modern and advance techniques based on latest know – how and experience.
4. The technical know – how is being obtained from various experts which regularly visit, inspect and monitor the progress of farms.
5. Irrigation is being done through computer controlled drip irrigation system.
6. Farms are well equipped with controlled fertigation and weather stations.
7. Various cultivation practices like – super intensive plantations, fertigation, plant protection, agronomical practices, leaves diagnosis were undertaken.



RESULT:-

After review the results of fruit harvested, it was observed that quality of oil is as good as international standards. There were some bottlenecks of low production, recovery of oil, varietal difference etc., but main emphases was given for positive results and project was initiated for next phase.



Plantation View of 18 months old Olive Plants



Plantation View of 36 months old Olive Plants



Flowering View of 48 months old Olive Plants



Fruiting on olive trees Olive Plants

Establishment of Olive Oil Expeller

A advance line of Olive Expeller was imported from Italy and the same was inaugurated on 03.10.2014 by the Hon[”]ble Chief Minister Govt. of Rajasthan. This unit is semi automatic consist of Hopper, Fruit ladder, Washing Unit, Crushing Unit, Melaxer, Decanter &

Separator. The unit is working on principal of cold press and centrifugal force to expel oil without using any chemicals.

This unit can operated a capacity up to 3-5 MT fruit / hour and so far 175 MT fruits have been crushed and experimentally approx 12 MT oil was extracted.

Rajolive Brand

After establishing the expeller line, it was further planned to organize the sale of oil accordingly a brand called “**RAJOLIVE**” was registered for induction of Indian Olive Oil in domestic market.

The oil extracted was examined with international standards and it was resolved that quality of oil is very good hence categorized in best Olive oil as Extra Virgin Olive Oil.



Expansion of Olive Cultivation on farmer's field

On the basis of experience gained during the period and laboratory result, it was planned to expand the Olive Cultivation on farmer's field as a experiment and continue, the study of Olive Cultivation in different sets of management and assistance was also provided to the farmers.



Establishment of Modern Nursery

It is a proven fact that quality saplings are basic foundation to develop the entire chain of plantation. Accordingly with the help of Israeli technology a world class modern nursery was established at Bassi, Jaipur. The nursery has capacity to produce 20 lacs sapling annually.



In order to maintain high quality plants are being raised as per international protocol i.e. without soil. The sterilized artificial media ensure no infection and selection of mother plants are being done by experts.

OLIVE TEA

There were seven different olive cultivars planted in seven different locations under different management systems. It was observed that some varieties does not exhibit flowers. In order to make use of these plantations the work has been further practiced and it was found that olive leaves contain various anti oxidants.





The medicinal properties of anti oxidant and their quality in olive leave provide us another opportunity for the segment of no flowering.

It was learnt that olive needs chilling hours for initiation of flowering. The prevailing climate of Rajasthan is on border and there are chances of having no chilling in coming years. Low chilling in 2016 has given indications on the issue.

The olive leaves were analyzed as under

S. No.	Parameters	Test Result	Protocol
1	Hydroxytyrosol, mg/Kg	212.92	FL/SOP/HPLC-16
2	Luteolin, mg/Kg	312.51	FL/SOP/HPLC-16
3	Caffeic Acid, mg/Kg	30.91	FL/SOP/HPLC-16
4	Apigenin, mg/Kg	24.89	FL/SOP/HPLC-16

During the learning process team ROCL has visited many tea growing areas of India like Darjeeling, Assam, Ooty, Kunoor etc. After series of discussion it was hypothesized that we can produce caffeine free health drink which may be substitute of green tea.

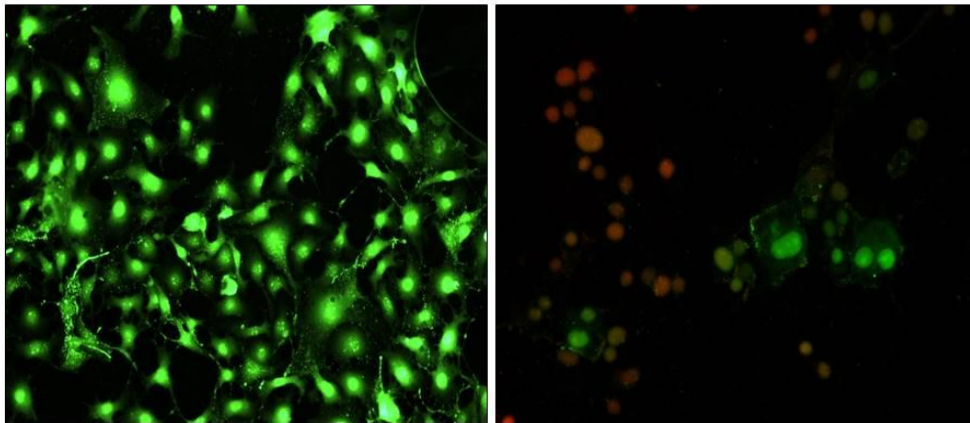
The recipe was prepared with a series of organolaptic tests and feedback received from various people around the globe. Finally ROCL introduces Processed *Olive Tea* first time in history.

This Olive tea was offered to Mr. Benjamin Netanyahu Honorable Prime Minister of Israel by Honorable Shri Ram Nath Kovind, President of India during his visit in India on 15.1.2018. He also admires the taste.

OTHER COMPONENTS IN PIPE LINE

- The preliminary research on uses of olive leaves extract has shown impact of controlling cancer. This preliminary research was conducted in Vidhya Sagar University West Bengal which was further supported by the study conducted in Manipal University.

Anticancer activity of olive leaf extract



All the viable cells appeared as green after staining with EtBr and the red or orange cells represent the dead or late apoptotic cells respectively.

7/2/2018

Dr. Mousumi Debnath and Dr. Debashish Maiti

- Rajasthan Olive Cultivation also considering for extraction of Vitamin – E from leaves.

INTERESTING FACTS:-

1. The Government of Rajasthan has declared Olive as "Plantation Crop"
2. The Government of India allowed 100% foreign direct investment (FDI) through automatic route.
3. Demonstration of 4D Aqua technology allows to grow crop under high salinity.
4. The Government of India has included olive as a crop under National Mission on Oil Seeds and Oil Palm.
5. Other states are also coming up.

LESSON LEARNED:-

- Olive is very sensitive crop and any stress to trees takes two or more years to overcome. We should to be very patience full towards dealing with this crop.
- The plants was exposed to new problem like spider mites, termites, Dry & hot wind, big difference of low and high temperature during the day etc.
- ROCL has created a mechanism to face the challenges with the help of technologies. Farms were equipped with controlled fertigation and frequent visit of experts was very helpful.
- If we have to conclude the success we can say that constitution of ROCL in Company Law and retention of officers for longer period in project are the key of success.



Olive farm Lunkaransar (Bikaner)

SUPPORTING QUOTES IN THEIR WORDS:-

Success Story - 1

"I Sahabram Saharan, resident of village Maderan, district Sriganganagar. My field is located parallel to international border of India & Pakistan. Our main source occupation is agriculture. Due to tense conditions on border we are the first to suffer our seasonal crops. Due to lack of income we always prefer to have a government job in family over agriculture.

My nephew Deepak was sent to Australia for study and during his stay, he always mention the way of modern agriculture prevailing in Australia.



On day he told me that the Government of Rajasthan is experimenting Olive Cultivation nearby, than I become eger to see and examine by my own, I visited to Lunkaransar & Barore demonstration farms. I become confident after seeing olive fruits.

Accordingly I planted 10.00 hectares of olives. Suddenly I was surprised to see BBC, CNN, Z News and any more media channel on my farms. Even many Pakistani growers start watching from the fence. I become VIP from an ordinary farmer.

In last five years this olive industry is increasing day by day. Now because of olive tea we have opportunity to sale olive leaves. I have updated from other farmers that leaves shall be procured in Rs. 50/ kg green which is much more than price of wheat.

There are some gray area but I am quite sure that the Government of Rajasthan via ROCL will find all solutions, Hats off to ROCL

- Sh. Sahabram Saharan
Village Maderan,
Tehsil & District -Sriganganagar

Success Story - 2

"I am Dr. Rajendra Singh, resident of Sirsa district of Haryana. We have parental land in district Bikaner, Rajasthan. I am a child specialist by profession and well verse with the benefits and prospect of olive cultivation. I planted 16 hectare of olives. My farm land is located in middle of desert and in remote area.

After plantation of one year suddenly my farms become a spot of many investors and innovative farmers which provide me an idea to convert this farm as Agro- Tourism and use the landscape.

Our from is located in middle of desert and far away from village and about 5 km away from connecting road even though we start our income.



We build 20 rooms, restaurant along with other tourist attractions like Desert Safari with motor bike, Gypsy, Camel along with swimming pool and food from olive oil.

It is wonderful experience that olive trees are still young and because of their esthetic value and orientation of farms we start occupancy in middle of no men land. Our plantation is new and we are going to expand it further.

- D/o Dr. Rajendra Singh
Village - 1, SLD, Sherpura,
Tehsil - Chattargarh (Bikaner)

ADDITIONAL INFORMATION:-

Rajasthan olive cultivation Limited,
Agriculture Research Station, Durgapura, Jaipur
Email :- rocl@rajolive.com
Contact No.:- 0141-2553506