PIONEER IN DATE PALM AND SEEDLESS PLANTS IMPORT
PLANT TISSUE CULTURE
BIOTECHNOLOGIES

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GREEN SYSTEM PAKISTAN

GSP is the market leader for production of Date Palm plants by Tissue Culture. Pioneers in the field import of date palm trees of highest production within two year after plantation. We have over 28 years of experience in the production of high quality, disease-free, true-to-type micro-propagated Date Palm plants. Using our unique system, we produce Date Palms of the highest quality available on the market today and have successfully supplied these plants to over 6 countries all across the date growing World. We import different varieties of date palm from USA, Egypt, Morocco, Saudi Arabia UAE and Qatar to promote date palm production in Pakistan and helping in strengthen agricultural sector. We are also providing services in the agriculture sector that includes laser leveling, landscaping and irrigation paradigms drip and sprinkler irrigation. GSP has tremendous history in developing barren to fertile land our working rendered conversion of 70 thousand acre infertile land to productive land in which 30 thousand acre were affected by salinity of pH 10. Out of 40 thousand acre land 15 thousand acre were sandy without leveling and irrigation. We used drip and sprinkler irrigation systems to make it capable for farming. 25 thousand acre were water logged after flood in most regions of Pakistan. This land was improved by using latest technologies. In compatible manner we not only utilize our company heavy equipments but also import various kinds of seedless varieties from abroad including date palm, seedless citrus, melons and lemon varieties. Similarly these varieties were cultivated to get highest yield to improve agricultural economy. GSP utilized all types of imported date palm and other seedless citrus varsities for tissue culture to increase yield and plant efficiency for growth in limited period of time. Although the idea of plant tissue and cell culture was conceived as early as 1902 by the German botanist Harberlandt, it was only during the last three decades or so that its application have increased considerably both in the basic research especially in the agriculture and horticulture. Now it has emerged as a multi-billion dollars industry for growing ornamentals and other botanicals. Starting from Himalaya foot hills to Karachi, Pakistan has a variety of ecological zones and a wide range of vegetation including flowers, foliage plants and crops which offers tremendous scope for exploiting tissue culture techniques for mass multiplication of economically important flora. This can be particularly useful in the production of economically important flora. This can be particularly useful in the production of elite and rare orchids and other plants, which have, export value. However, for effective
utilization of this technique it is necessary that scientists and private sector should interact and work on the practical application of the techniques for commercial purposes. This has been successfully done in Malaysia, Srilanka, Singapore and Egypt. Singapore alone is earning 2 million U.S. dollars by exporting of orchids mostly grown through this technique. Unfortunately we have not been able to exploit the tissue culture technique to a considerable extent. Time has now come to get into action to utilize the technology available for the benefit of the nation. There is yet no major commercial utilization of tissue culture in Pakistan. Green System Pakistan is playing a valuable role in the development of a program for the application of tissue culture in agriculture, horticulture, forestry, medicinal plants and ornamentals. That is the only private institute that not only started tissue culture lab but also import the very precious type of date palm varieties to upgrade the agriculture economy. Dates have always been held in very high esteem in almost all cultures and religions in the world. The real importance of this chief of all fruits in the world could well be gauged from the fact that date palms and dates have been referred to over twenty times in the Holy Quran and many Ahadith and sayings of the Holy Prophet. In view of high nutritive value and universal appeal of the fruit, dates have been celebrated by poets. Dates are rich in carbohydrates, minerals and vitamins. There is no cholesterol and no fat in dates. Dates have a great importance as a staple food as well as a dessert fruit. The fruit is generally associated with health foods. Peak season for date consumption is during the month of Ramadan. Entire Muslim community around the world currently numbering 1.6 billion people is loyal consumer of dates. Consumption is also quite high during Christmas. Similarly, the fruit enjoys enormous significance on the occasion of Divali and such festivals in other religions. In Europe and North America, the fruit is particularly preferred during the dark winter months. Usual sales of dates are spread to a period from October to April. Dates have found their way into sweets, confectionery, chocolates, baking products, preservatives, salads, sauces, and breakfast cereals. Dates also have bulk industrial uses. With advancements in food technology, newer and very useful date products are being developed, indicating fruit's bright future.

Culture of Date Palm: The date palm has adapted to areas with long dry summers and mild winters. It has a unique characteristic to thrive in desert and oasis where temperature could be high but with underground water close to the surface. Under these situations the date palm is described as having
its feet in the running water and its head in the fire of the sky. Date fruit production is dependent on the availability of certain heat requirements according to varieties. Most dry varieties are found in the dry areas whereas soft and semi dry varieties are confined to the humid and semi dry areas. Date Palms can grow in different types of soil, but the best productions were recorded in light deep soils. It can tolerate high level of salinity i.e. some varieties can survive salinity level up to 22000 ppm, but their growth and fruit productivity would be affected. GSP provides consultation and soil testing labs which help in selection of variety of date palm compatible with environmental and soil factors. Tissue culture production of Date palm. (GSP) Palms are a much neglected plant group in terms of understanding their development and vegetative propagation potential. Yet, they are economically important in tropical and subtropical regions. The rapid propagation of date palm as well as propagation from a mature specimen is impossible due to the limited number of offshoots produced and the fact that offshoot production is limited to a certain period in the palm's life span. It is also a fact that the offshoot is property of GSP of all the imported palm varieties. The application of tissue culture techniques for date palm, also called in vitro propagation, has many advantages (in comparison to other techniques) and includes the following:

1. Propagation of healthy selected female cultivars (disease and pest-free), Beyond resistant cultivars, or males having superior pollen with useful metaxenia characteristics which can easily and rapidly be propagated;

2. Large scale multiplication;

3. No seasonal effect on plants because they can be multiplied under controlled conditions in the laboratory throughout the year;

4. Production of genetically uniform plants

5. Clones to be propagated from elite cultivars already in existence or from the F1 hybrids of previous selections, and seed-only originated palms;

6. Ensure an easy and fast exchange of plant material between different regions of the country or between countries without any risk of the spread of diseases and pests; and

7. Economically reliable when large production is required.

8. To increase the production and reduce the import all types of date palm plants.
Fig 1. The initial inflorescence explants of 2 months after culture on the starting medium. Notice direct initiation of the shining Globular structures (pro-embryos) instead of the small florets.

Fig. 2. Healthy shoots in the multiplication stage. Each culture vessel (350 ml3) may contain 20-30 shoots. Note the growth vigor and length of the proliferated shoots is expressing readiness for rooting.
The initial inflorescence explants of 2 months after culture on the starting medium. Notice direct initiation of the shining globular structures (pro-embryos) instead of the small florets. In B) Healthy shoots in the multiplication stage. Each culture vessel (350 ml) may contain 20-30 shoots. Note the growth vigor and length of the proliferated shoots is expressing readiness for rooting.

Fig. 4. One-month old date palm plantlets of female inflorescence technique were successfully acclimatized. Note thrive, tall and wide leaves.
Fig. 5. Truck carrying Mabroom date palm from GSP Farm house

Fig. 6. Date palm Mabroom ready for plantation in field
Fig. 7. Date palm Mabroom after three year of plantation in the field fruits are cover with bags

Fig. 8. Mabroom Dates after ripening at Green system Pakistan
**Offshoot propagation**

Also called asexual or vegetative propagation, offers the following advantages:

(I) Offshoot plants are true to type to the parent palm. The offshoots develop from axillary buds on the trunk of the mother plant and consequently the fruit produced will be of the same quality as the mother palm and ensures uniformity of produce.

(ii) The offshoot plant will bear fruits 2 - 3 years earlier than seedlings. The life span of the date palm is divided into two distinct developmental phases: vegetative, in which buds forming in the leaf axils develop into offshoots; and generative, in which buds form inflorescences and offshoots cease. From the time that the axillary bud of a leaf has differentiated into an offshoot until the time it grows outwards, takes up to three years (18 to 36 months), with another three to four years before it reaches the desired size for its separation and planting (Hilgeman, 1954). Offshoots are mainly produced in a limited number (20 to 30 at most) during the early life of the palm (10 to 15 years from the date of its planting) depending on the variety and on prior fertilisation treatment, irrigation and earthing up around the trunks, (Nixon and Carpenter, 1978). Although 20 to 30 offshoots are produced by a palm, only three or four offshoots are suitable for planting out in one year and must still go into the nursery for 1 to 2 years before field planting. Zahidi, Berim and Hayani varieties are known to produce large numbers of offshoots, while Mektoum and Barhee varieties produce relatively low numbers of offshoots. Green system Pakistan holding master paradigms to make sure the production of date palm varieties through tissue culture biotechnology in which variety low extant of offshoot growth occur.

Fig.9. Diagrammatic construction of a date palm with its root system and offshoot
Fig. 10. Zahidi Date palm Offshoot propagations

Fig. 11. Normal axillary offshoots after their separation from the mother palm
Fig. 12. High offshoots on the palm using plastic bags filled with saw-dust

Figure 13. Offshoots pruning methods. A-as an onion-bulb. B - Average pruning. C - Short pruning
Fig. 14. Offshoot becomes a complete Date palm tree (Zahidi)

Fig. 15. Measurement of date palm tree
Fig. 16. Dates shifting to GSP Farm house for processing and packing

Fig. 17. Dates after drying or processing
Growing Dates and Medjool Date Palms in Pakistan

In recent years, date palms have become extremely popular as landscape specimens in subtropical areas across the globe, and especially in USA now in Pakistan In four provinces Punjab, Sindh, Khyber Pakhtoonkhwa and Baluchistan by Green System Pakistan (GSP). Pakistan Due to rich soil, abundant sunshine and four distinct seasons make Pakistan an ideal place for cultivating a variety of agriculture crops. The above factors help in creating a very special taste in our farm produce, particularly in fruits: mangoes, apples, and dates. Makran, Khairpur (Mirs) and D.I. Khan are major date growing regions in the country. Our commercially important date varieties include Aseel, Karbala, Fasli and Kupro of Sindh; Muzawati, Begum Jangi, Jaan Swore, Kehraba and Rabai of Balochistan; Dhakki and Gulistan of Khyberpakhtoonkhwa and a seedless variety of Punjab. Date palms are more expensive than most other palms, however they are very desirable. People like them because of their striking appearance & natural beauty, their ancient history, and also for their easy maintenance. Date palms look great as single specimens and also in group plantings. The date palm can live to the age of about 200 years, and they can eventually reach heights of 80-100 feet tall.
Pakistan is the fourth largest date producing country in the world. But there are no co-ordinated research activities concerning date palm and dates, here. Countries with much smaller number of date palms have modern Date Palm Development Institutes guiding their date farmers, date processors, and date exporters to apply latest techniques for getting better results. There have been tremendous advancements in date-culture practices and date processing methods in the world. There is a need for most modern Date Palm Development Institutes in the country. To begin with, a Date Palm Development Institute may be set up in Khairpur (Mirs), where other relevant infrastructure already exist Khairpur (Mirs) is one of the largest date growing districts in the world. The place has direct, rapid, and immediate road, rail and air links with the rest of the country. All these things make it the most suitable choice for the institute. Shah Abdul Latif University, Khairpur (Mirs) may be encouraged to take the initiative. Technical co-operation may also be obtained from FAO/UN, UNDP and major date producing countries in the Middle East, such as Saudi Arabia, UAE and Oman. The Date Palm Development Institute, when established, may among other things start diploma courses for date graders, date quality controllers, date quality inspectors and date food technologists in collaboration with Sindh Board of Technical Education. These diploma holders may find ready jobs in date factories in Pakistan as well as in the Middle East.

Date palms grow well throughout the world where they are used mostly in landscaping. There are three date palm varieties commonly used in USA for landscaping; the Medjool date palm, the Zahidi date palms, and the Deglet Noor date palm. Deglet Noor date palms are often planted in shopping centers and malls throughout southern California giving an immediate tropical look to the setting. Medjool date palms have a much more full and dense canopy compared to the Deglet Noor whose canopy is more sparsely open with fewer fronds. The Medjool and Zahidi date palms are very similar in appearance with beautiful silvery green foliage, although the Zahidi date palm usually has a slightly larger trunk than the Medjool and the Zahidi's canopy is slightly more full and dense - a very beautiful landscape specimen.

Date palms like full sun and plenty of water, although they are very drought hardy and can survive extended periods without watering once they are established. Newly planted date palms require frequent watering until they are well established. Mature date palms can withstand temperatures
several degrees below freezing.

In Pakistan by the grace of Almighty Allah we have four seasons and have land of all the types in Punjab most of land can be used to grow halawi and for Baluchistan dry and cold conditions we can utilize Medjool.

Male date palms are popular for landscaping in USA also can be used in Pakistan because the male date palms flower briefly in the spring without the yearly crop of dates that female date palms have which can attract unwanted insects, rodents, etc.

For commercial date production, date palms require summertime heat and air with little moisture as is found in the Southern California in USA and in Pakistan Punjab and Baluchistan deserts and they require lots of water! we have drip and sprinkler irrigation system for that.

In its early years, the date palm produces off-shoots which can be removed and planted. Female date palm off-shoots will usually begin to produce fruit in 4-5 five years. Date palms can also be grown from seed, however the quality of the dates can vary in seedling date palms and only about half the palms grown from seed will be females. Female date palms grown from seed also take about twice as long to produce dates, usually 10 years or more. Date palms do pollinate naturally, but date production from open pollination is usually low. Artificial pollination increases production substantially. Similar practices made out by the green system Pakistan to make the sure fertilization process in the most of the regions of Pakistan where medjool date palm farms developed.

The date fruit takes about six months to ripen. In the Middle East, there are four named stages of date ripening; kimri, khalal, rutab, and then tamar. The kimri stage is while the dates are green. The khalal stage is when the dates have grown to their maximum size and turn yellowish or reddish depending on the specific date variety. In the rutab stage, the dates begin to soften and lose their bright colors. The date is fully mature at the tamar stage. We GSP offer most productive varieties which are able to gave dates at the age of three year and maximum matchless yield.

Most dates are eaten at the fully mature tamar stage, although the Barhi and Halawi dates are also eaten at Khalal stage, when they are sweet and crunchy.

In Pakistan GSP revolutionizes the production segment of date palm through import of high yielding
date varieties from USA, Saudi Arabia, Qatar, Morocco, and UAE. GSP is the only private sector institute that deals in dates of world class.

Dates are classified as soft, semi-dry, and dry. The dry dates are commonly used in the Middle East for everyday consumption. The sweeter dates are used as a dessert in the Middle East as well as the United States. Among the sweeter dates is the Medjool Date which is considered by many to be the "king of dates" and was once reserved only for royalty! The Medjool is known for its unusually large size and its delicious flavor. It can grow to about three inches long and even though it is classified as a soft date it is firmer and more resilient than most other soft dates and it handles much better as well. The Medjool date was brought to Pakistan through the Green System Pakistan for development of agriculture economy.

Mature female date palms yield an average of about 100 pounds of dates per palm each year. One of the most important factors in date yield is the amount of irrigation water they receive. The cultivation of dates is very labor intensive and dangerous. While the dates are maturing on the palm, the dates are preyed upon by small mammals, birds, and insects. Farmers place a protective bag around each date cluster to prevent access to the dates and also for rain protection. Some date varieties are much more vulnerable to moisture. Soft dates are much more difficult to cultivate and require extensive care and handling.
We offer both male & female date palms for sale in Pakistan, including female medjool date palms grown from offshoots. Our Medjool date palms are available in all sizes from recently removed pups or "offshoots" to full grown mature palms.

We also have female Zahidi date palm offshoots in stock right now, with more Barhi date palm offshoots and Halawi date palm offshoots available again soon.

Male date palms are typically used for landscaping, and also as a source of pollen for fertilization of female date palms. Female date palms are usually grown for date production. Male date palms for landscaping are relatively inexpensive, while some female date palms grown from off-shoots of specific date cultivars have very limited availability and high demand.
We also have smaller size female medjool date palm offshoots for sale in pots for those who wish to grow their own dates at home in their yard, in addition to our larger size mature female medjool date palms. Our smaller size male date palm offshoots are also for sale in 10 gallon to 25 gallon pots (male date palms are used for pollination & for landscaping).

Our female medjool date palm "rooted" offshoots are in 15 gallon and 25 gallon pots. These medjool palm pups were removed from their medjool mother palms over one year ago. They have now developed their own roots, and they have put out at least 2-3 feet of new growth. Our 8 year old female medjool date palm rooted off-shoots stand about 7 to 8 feet tall. These rooted medjool off-shoots are ready for planting and the sole property of GSP. Please call +9244-4000002 for price information and how to purchase.

Older mature date palm trees are sold based on their age and the amount of woody trunk the palm has: a recently removed pup usually has about 1 foot of woody trunk, a 12 foot tall date palm has about 4 feet of woody trunk, and a 20 foot tall date palm has about 10 feet of woody trunk. Please call +9244-4000002 for current date palm price & availability.

**Fresh Medjool Dates For Sale**

We have organically grown freshly picked medjool dates available from farm house of GSP throughout the year.
Halawi dates (aka Halawy) are a very sweet soft date variety of medium size with wonderful caramel-honey like flavor. The halawi date palm variety is from Mesopotamia, and the name actually means "sweet" in Arabic. In some cultures, the halawi date is eaten at the khalal stage when it has become yellow and is still crunchy like an apple. The flavor at this khalal stage is less sweet and very different. If allowed to ripen further, the halawi date will next enter the rutab stage where it begins to turn a beautiful golden-amber color as it softens and becomes very sweet and delicious. Halawi date palms grow very well in Pakistan. For landscaping, the halawi date palm trunk and canopy is much larger than both the medjool and the zahidi, making the halawi date palm a very impressive landscape specimen! Its yield per plant is 500 kg.
Zahidi date palms (aka Zehedi, Zadie, and originally from the Persian Azadi) produce a very sweet delicious date of medium size that can be used as a soft date or as a dry date, depending on the length of time it is allowed to remain on the palm. The zahidi date palm variety is from Mesopotamia, and the name means Nobility. Ripe zahidi dates have beautiful golden-yellow color and they are early season.

The Zahidi date palm offshoots shown at left are 12 year olds in 25 gallon pots with 2.5 feet of woody trunk. We have these large size female zahidi date palm offshoots available right now with special pricing.

Zahidi date palms are very vigorous and prolific in fruiting, and they grow well in Pakistan. For landscaping, the zahidi date palm is among the finest of the date palms. The zahidi trunk and canopy is very similar to the medjool date palm with beautiful silvery green foliage, and the zahidi has a slightly more dense upright canopy than the medjool. Like the medjool, the zahidi date palm is highly prized for the quality and flavor of its dates, and for its fine appearance.
Zahidi Date Palm.
Mabroom dates

Mabroom dates are one of the finest dates cultivated in Madinah Monawarrah. A bit elastic and chewy in nature, Mabroom dates have a tender interior which is quite rich in taste. They also contain 2.5 times the amount of Potassium as compared to a banana. This is an exceptional amount considering the size of the date as well as being a source of instant energy. Athletes and those involved in manual labour will find this fact particularly useful as dates can provide one with a huge amount of vigour in a very short period of time. Its fruits are highly expensive 2700 rupee per Kg. it is most elegant in selection for farming.
Highly prized for its elegant beauty Canariensis are so beautiful and alluring that you can use them just about anywhere on site! Thick heavy caliper trunk with large nut at the top. Dark green foliage, huge canopy. Available in matching sizes from 6' to 25' of clear trunk. Green system Pakistan has in stock, ready for immediate pick up, the largest selection for landscaping. Phoenix Canariensis has been utilized as a theme generating focal point in landscapes worldwide for decades. Its majesty and substantial presence make the Canary Island Date Palm a powerful choice where you are looking to bring natural maturity to a site. Utilized in rows or as a freestanding centerpiece, there really aren’t many locations on site where you cannot use Canariensis successfully. Probably the best adjective that one could use to describe Canariensis is Stunning. If you get through the establishment period sane, and provided you maintain it with reasonable diligence, your Canary will probably outlive you and will be a truly stunning addition to the family. Mature Canary Island Date Palms are rarely found in nurseries. These unique specimens are collected from existing landscapes throughout the warmer regions of the United States and feasible
for all the regions of Pakistan. Because they are collected palms, obtaining exactly matching Canaries is not a realistic goal. We can come fairly close but for applications where an exact match is a necessity, you may want to consider changing the spec to either the Medjool or the Zahidi Date Palm. Medjools and Zahidis are nursery produced and so can be matched far more closely.

**Date Nutritional Information**

Traditionally, the fruit of the date palm has been used for treating many kinds of ailments in the Islamic world including the treatment of respiratory disorders, and to stimulate the heart rate. Dates also have traditionally been processed into a salve for treating certain kinds of wounds. Dates also are recommended for consumption by lactating women to add extra nutrition into their diet. The Plant Sciences Division website at the University of California at Davis, states that Bedouin Arabs who eat dates on a regular basis have shown an extremely low incidence of cancer and heart disease when compared with people who do not eat dates regularly.

**Tree Ripened Fruit**

Our tree ripened fruit program has been a huge success! At certain times of year, we can ship orders for organically grown freshly picked medjool dates, organically grown mesquite seed pods, and occasionally a selection of other rare and exotic fruits that were grown organically and allowed to fully ripen on the tree.
Frequently Asked Questions

• SHIPPING: For Medjool, Mabroom, Halawi and Zahidi date palms min 15 gallon pots, we recommend that customers come and take the medjool date palms home in their pick-up truck. For small orders of 15 gallon Medjool date palms, local delivery to your driveway can usually be arranged.

  • Payment. Via Bank, Draft, online
  • Account details. Title account. Green system Pakistan,
  • Account No..0192-01875155
  • Bank name. ALFALAH LTD DEPALPUR BRANCH.
  • We also have system of drip and sprinkler irrigation for saline and High pH soils
  • Soil and water testing labs facility
  • Laser leveling
  • MEDJOOL DATE PALM TREES: Our medjool dalm palm offshoots (and our other palm varieties) are grown near Farm house of (GSP) Pakistan. Smaller size medjool date palms are available for pick-up in Depalpur, by appointment only. Delivery of Medjool date palm trees to homeowners in Pakistan can be arranged. We do recommend homeowners hire an experienced landscaper (we are offering landscaping services) for planting and irrigation services.

  • SEEDS: We do offer fresh SEEDS at certain times of year.
  • FRESH MEDJOOL DATES: fresh organically grown in GSP giant medjool dates are available in through out the year.
  • GUARANTEE: We guarantee our plants, fruits and trees to be in good condition at the time of sale.
• For all other questions, you may contact us at:
  Green system Pakistan,
  Khraksingh Depalpur district Okara.
• Contact No. +92444000002, +923125888888, +92336-5100000, +92323-5200000.
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