



LOTUS

The Flower Of A Thousand Legends



Telangana State Forest Academy

ACKNOWLEDGMENT

We, Jaya Bagade, Aniruddha Mane and Shailendra Bhavar, 10th Batch FRO trainees have completed the project on Lotus and Waterlily in the premises of Chandan (FRO) Hostel. We would like to express our gratitude towards **Dr. S. J. Asha**, IFS., CCF/Director, TGSFA, **Mrs. B. Praveena**, IFS., Joint Director & Course Director (10th Batch) FRO ITP, **Mr. B. Venkateswar Rao**, Dy. Director, TGSFA, **Mr. Vamsi Krishna**, Dy. Director & ACD (10th Batch) FRO ITP, TGSFA for their constant support and guidance.

We would also like to extend our thanks to all my friends and hidden hands who have helped us to complete this project.

Thanking You,

Jaya S. Bagade (Roll No. 10)
Aniruddha Mane (Roll No. 03)
Shailendra Bhavar (Roll No.26)
[10th Batch FRO Trainees]

SACRED LOTUS

Padmini, Symbol of Rebirth, pure consciousness and Enlightenment and embodying the ultimate realization of spiritual attainment.



“When the East
Gave birth to the Moon,
Love was the dancer at
the feast;
The heavens smiled for
joy;
And the Wind strewed
the perfumed dust
Of lotus-pollen in the
courtyard of the sky.”

Poems from the Sanskrit
(Trans. by John Brough)

Lotus is a symbol of purity, enlightenment, and rebirth in many Eastern cultures, particularly in Hinduism and Buddhism. The growth cycle of the lotus, with its roots in the mud, stem in the water, and flower reaching towards the sun, is often interpreted as a metaphor for spiritual development and the journey towards enlightenment.

Nelumbo Nucifera:

The water lotus, scientifically known as *Nelumbo nucifera*, commonly referred to as the sacred lotus, Indian lotus, or simply the lotus, this plant is renowned for its exquisite beauty, serene presence, and rich symbolism.

Native to parts of Asia, and National flower of India, the water lotus is an aquatic perennial that thrives in shallow waters, such as ponds, lakes, and slow-moving rivers.



Nelumbo Nucifera

Asian lotus plants typically produce flowers in various colours, including white, pink, and shades of red. There are also cultivated varieties with double petals or unique colour combinations

SCIENTIFIC CLASSIFICATION:

Kingdom: Plantae

Division (or Phylum): Angiosperms (Flowering Plants)

Class: Eudicots

Order: Proteales

Family: Nelumbonaceae

Genus: Nelumbo

Nelumbo nucifera – Asian Lotus or Sacred Lotus

Nelumbo lutea – American Lotus

TYPES OF LOTUS –

A. Tropical Lotus

- These are adapted to warm climates and thrive in regions with consistently high temperatures.
- Sensitive to cold, goes in dormancy during winter.
- Plants often have larger and more vibrant flowers and require warm water temperatures for optimal growth.

B. Semi-Tropical Lotus

- More adaptable to a range of climates and can tolerate slightly cooler temperatures compared to tropical lotus.
- They are suitable for regions with milder winter.

C. Hardy Lotus

- Well-suited for colder climates and can withstand winter temperatures
- Often going dormant during the colder months and resuming growth in the warmer seasons.
- Tend to have robust rhizomes that can survive freezing temperatures.



Lotus Flower



Lotus leave



Seed Pod



Tubers of Lotus

Hybrid Lotus:

Lotus plants can be hybridized to create new varieties with different colours and characteristics.



Lotus Kaveri



Lotus Yellow Peony



Red Blood drop





2024.08.03 10:55

SAHASTRADAL : The Flower Of A Thousand Legends

Ultimate 1000 petal lotus is one of the rarest lotus species which have at least 800 to 1000 petals, when fully bloomed. It looks like a giant red violet shaded ball once it matures. Strong fragrance is yet another feature of this species.

The thousand petal lotus, known as Sahasrara, symbolizes the highest state of consciousness and spiritual awakening in Hindu and Buddhist traditions.

The Thousand-Petaled Lotus holds great cultural and practical value:

- ❖ **Ornamental Value:** Its unique floral structure makes it one of the most prized varieties for observation and display.

- ❖ **Buddhist Symbolism:** The lotus serves as an important symbol in Buddhism, with this variety being particularly revered.
- ❖ **Edible Lotus Root:** In Yunnan, it is cultivated as a food crop, with lotus root products coming to market every autumn and winter.





Water lily

Also known as Kumudini, Nymphaeaceae is a family of flowering plants, commonly called water lilies. They live as rhizomatous aquatic herbs in temperate and tropical climates around the world. The family contains five genera with about 70 known species. Water lilies are rooted in soil in bodies of water, with leaves and flowers floating on or rising from the surface. Leaves are oval and heart-shaped in *Barclaya*. leaves are round, with a radial notch in *Nymphaea* and *Nuphar*, but fully circular in *Victoria* and *Euryale*.

There are two main types of water lilies:

1. Hardy Lily
2. Tropical. Lily

Hardy water lilies (*Nymphaea* spp.) can survive colder temperatures and are suitable for a wide range of climates, so are well-suited for most garden ponds, while tropical water lilies thrive in warmer conditions.

Water lilies prefer ponds that are at least 18 inches deep, but they can grow in deeper water as well. Make sure your pond is spacious enough for the lilies you want to plant, as they can spread and take up a significant amount of space over time.

- ❖ Use a heavy clay or loam soil mix. Avoid using regular garden soil or potting soil, as these may not work well in an aquatic environment.
- ❖ Place your potted water lily in a planting container or a special aquatic planting basket, with the crown (the growing point) exposed.

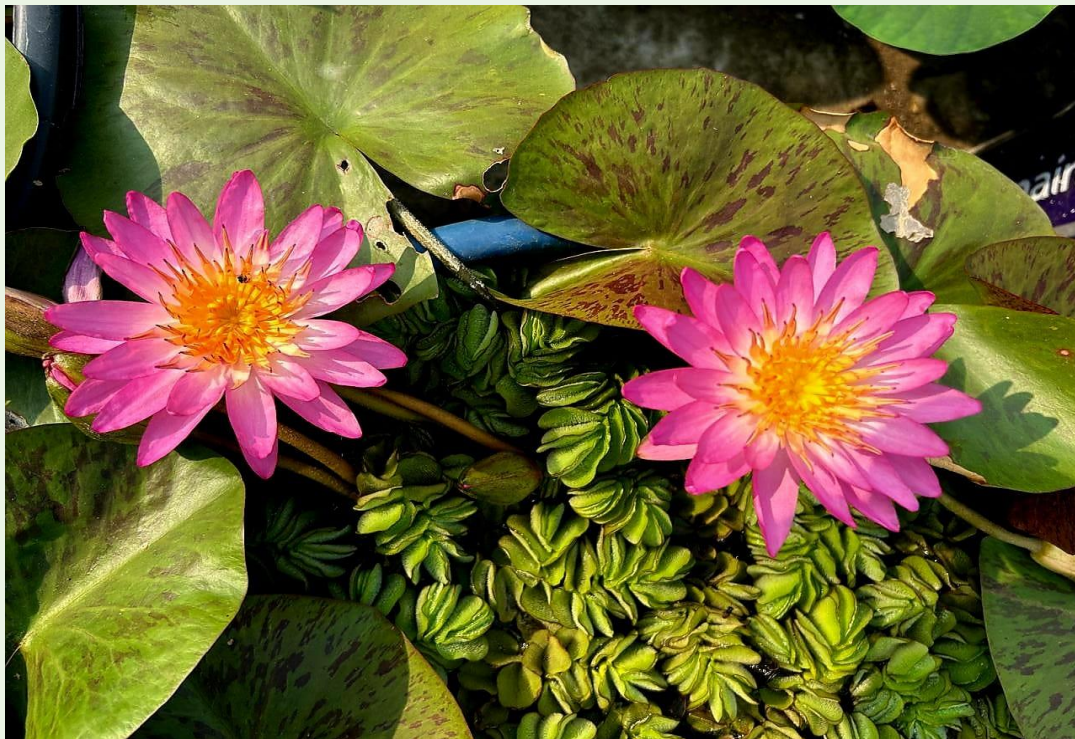
- ❖ Position the water lily in the desired location in your pond, ensuring that it's submerged at the recommended depth. The crown should be about 6 inches below the water's surface.

Hybrid Water Lilies:

Hybrid water lilies are created by cross-breeding different species or cultivars of water lilies. They are often developed to showcase specific desirable traits, such as vibrant colours, unique patterns, or adaptations for certain growing conditions. These hybrids can exhibit a wide range of colours, shapes, and sizes, offering diversity to water garden enthusiasts.



Trail Blazer Lily



Jakkapong Lily



Siam Jasmine Lily



Bulls Eye lily

Associated Aquatic Species -

1. *Sagittaria japonica*:

It is a marsh plant with large green arrow-shaped leaves. It produces clusters of flowers consisting of three white petals with a yellow centre.

- ❖ Flowering period is between the July and September. It produces through bulbs.
- ❖ The bulbs are edible boiled or roasted. They Are riched in starch like potatoes but crispier.
- ❖ Full direct sunlight for at least 6 hours in the middle hours of the day.
- ❖ It disappears in winter after generating bulbs from which it vegetates again in spring.



2. *Ludwigia sedoides* :

Commonly known as Mosaic Plant, is a herbaceous perennial plant of the family *Onagraceae*. It has yellow flowers that bloom from June to August.

This floating *Ludwigia* is native to Central and South America, where it grows in stagnant waters and sections of riverine environments that are free of the current.



Propagation of Lotus:

Lotus is propagated by the division of rhizomes and seeds. Rhizomes with new sprouts are cut into small pieces having at least two nodes. Seeds are scarified at both the ends for early germination. They are grown in damp soil usually a combination of *loam* and *clay soil*. They require at least six hours of sunlight a day and should be sparingly fertilized in the first year. It is important to protect the lotus roots from freezing.

Micro Lotus:

This is smallest variety of lotus cultivated using the hybrid process. There are Two methods of propagation.

- ❖ Pot in pot method
- ❖ Small container method

Pot In Pot

- ❖ Take a garden soil and take same quantity of vermi compost or manure as same as the soil and small quantity of neem khall.
- ❖ Mix all the proportion well using water neither too watery nor dry.
- ❖ Then plant the tuber in it, then put pot in water fill pot, the height of the pot should be 1 to 2 inches more, otherwise it will reduce the flowering.

Small Container Method:

Process is as same as the said in PIP method but, in this we use only single container of medium size.

Thousand Petals Lotus Propagation:

- ❖ Take a water tank or big tank for best growth and flowering.
- ❖ Put 8 inch of vermi compost or manure in the bottom, we consider this as the first layer and press the layer properly.
- ❖ Cover first layer by 8-inch 2nd layer of fine soil, press the layer.
- ❖ Then add 2 inches of vermi compost or manure, press the layer.
- ❖ Then add 4 inch of mix soil and neem khalli layer, neatly pressed it.
- ❖ Add water using the polythene sheet, so it cannot damage the layer.
- ❖ After 4 days, after drying the water plant the tuber in it.
- ❖ For this first place the tuber on the layer surface, draw the sketch of that size then put the bulb in it not more than 1 inch, sprouting should be in upper side.
- ❖ Then fill the water and release some Guppy fishes in it to prevent from the mosquitoes.

Note:

- ❖ For best result wrap the water tank with gunny bags from all side and apply paste of soil on the gunny bag.
- ❖ It will cool the base of the water tank and it will give more flowering.
- ❖ Need to give the shed during the flowering season, to save the flowers from the sunburn, It will survive 15 to 20 days.
- ❖ Need to open the flower's petals by hands as plant don't have that much energy to completely open it by itself.
- ❖ You can use this method for all the lotus and the waterlilies, make sure the proportion is according to the tub size.

Fertilizer :

As the lotus grows in the pond or lake which have muddy soil, rich in nutrient. So, it's the best habitat to thrive the plant. But at home grown plant which we raised in small space needs the continuous nutrients. We need to give the extra supplements in the form of chemical fertilizer for the home-based plants.

When to apply fertilizer?

- ❖ After the two months of potting, when the floating and arial leaves start to grow.
- ❖ According to your potting size give the fertilizer in proper amount.
- ❖ If the container is big then feed 2 table spoons of NPK, if it is small then give one tablespoon after every 15 to 20 days.

Note

- ❖ As the hardy plants requires more nutrient than double of the tropical plant.
- ❖ Overfertilization will result in burning of the leaves, start from the edge of the leaves.
- ❖ To save the plant again we need to repot the plant.

When to stop giving fertilizers?

At the start of the winter season need to completely stop giving fertilizer to the plant as the plant goes in hibernation mode.

NPK Fertilizer comes in 4 forms

1. Liquid
2. Powder Form
3. Granule form
4. Tablet form

How to give fertilizer?

1. Powder form-

Using Teaspoon for small container and tablespoon for big size container.

- ❖ Put the fertilizer in double fold paper, give it to plant away from the root, put it inside the soil deep upto 2 inch then cover it using the mud.
- ❖ Same process is applicable in pot in pot method.

2. Using Pipe Method-

- ❖ Fix the pipe in the mud 2 inch in depth.
- ❖ Then give the fertilizer through that pipe.
- ❖ Drawbacks of this method, it is not equally distributed in other parts of the plant.

3.Using Bottle Method-

- Make hole in all side of the bottle even at the bottom side and on the top of the cap to evenly distribute the fertilizer.
- ❖ Fill the coarse sand in the bottle.
- ❖ Fix the bottle completely in the water and need to keep upper cap side in the air.
- ❖ Open the cap and fill the fertilizer and close the cap.

NPK -

Nitrogen (N)

Increase in

- Growth
- Strong root
- Chlorophyll
- Immunity

Phosphorous (P)

Increase in

- New Roots
- Flowers n Fruits
- Photosynthesis
- Strength

Potassium (K)

Increase in

- Immunity
- Protein
- Starch

DORMANCY:

Winter care for lotus and waterlilies to protect from dormancy to survive the winter.

- Temperature decreases, leaves start to damage and upper growth start to decrease.
- But they keep increasing growth in tubers and bulb.
- Multiplication of tuber and bulb.
- Tropical gets most affected and hardy plants less.

Precautions-

- ❖ Shift it in full sunlight zone.
- ❖ Cut the near by trees to pass on the sunlight.
- ❖ No fertilizer during the dormancy.
- ❖ Use Trichoderma fungicide, wrap it in double folded paper and insert in soil 1 inch deep to protect them from rotting.
- ❖ No repotting during the winter.
- ❖ Remove all floating plants to get the maximum sunlight to plant .
- ❖ Cut all the dry leaves which are above the water level.
- ❖ Not to cut those stems which are below the water level, otherwise it will rot the bulb/tuber.
- ❖ Cover with the polythene in every evening to maintain the warmth of the tub and remove it in morning (6 pm to 11 am).



During Dormancy

How to control Aphid, snails and larvae –

Aphids :

- ❖ Control population of aphid is good for the aquatic plants, it cleans the water and eat the rotten leaves and the algae.
- ❖ Wash out using the water repeat this process upto 3 to 4 days.



Snails:

- ❖ Using the Tomato and the cabbage slices we can get rid of this
- ❖ Place pieces of tomatoes or cabbage. Snails will come to feed on them. After 24 hours, remove the tomato and cabbage pieces along with snails.

Larvie leaf / China moth Larvie:

- ❖ It is most dangerous form of pest, difficult to remove, you need to remove it manually by hand.



Snail Feeding on the waterlily Plant

Repotting:

- ❖ Remove all the leaves and dead leaves, cut all the stem.
- ❖ Remove the guppy fish and azolo also.
- ❖ Don't use the hand gloves it is possible that tuber will damage.
- ❖ First look inside structure of lotus, it always grows in rounded shape.
- ❖ Add water in centre to loosen the soil, remove the loosen soil repeat this process until the tubers will get free from the soil.
- ❖ Remove the tuber without the damaging to it.
- ❖ Keep the tuber in another tub in upside down direction so that it will be easy for us to cut the tuber.
- ❖ Wash the tuber with clean water, only sprouted and runners useful for the planting.
- ❖ Cut the tuber by leaving two knots and alternatively cut it.

- ❖ Soak the cut tubers in fungicide for half an hour , then it is ready for the repotting.

When to change the soil -

Necessity to change the soil is based on the following test-

Eye Test-

- ❖ Fresh soil is brownish in colour and nutrient rich. Whereas old soil looks black in colour which is low in nutrient and carbon due to this root starts to rot.

Skin Test-

- ❖ Check for the elasticity, if it is high then need to change the soil.

Nose Test-

- ❖ If smell bads or drainage like smell then it is necessary to change the soil. After winter is the best time to change the soil or repot, it increases the productivity of the soil and gives flowering continuously in summer and rainy season.



The earliest mention of Lotus (*Nelumbo Nucifera*) in the subcontinent can be found in the Vedas, where the word *puskura* has been used to describe this beguiling flower. The Atharva Veda says the scent of the earth resides in the Lotus. “Yaste gandhah puskuram avivesa”.

Benefits:

- ❖ It is sweet to taste and normalizes kapha dosha and pitta dosha.
- ❖ It acts as a body coolant.
- ❖ Lotus improves skin glow and enhances color when used as a face pack.
- ❖ The roots, flowers, and seeds of the lotus plant have medicinal properties that can improve blood circulation, reduce stress, regulate blood pressure, improve digestion, and enhance skin complexion.



Jaya s. Bagade

Roll No. – 10
9175320485



Shailendra Bhavar

Roll No. – 26
9960807904



Aniruddha M.

Roll No. – 03
8983151596