

Blooming Success: The Benefits of Hydroponics in Floriculture

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With its many advantages and expansion prospects, hydroponics is transforming the floriculture sector. Hydroponics allows growers to grow high-quality flowers with better yields and less of an impact on the environment by utilising nutrient-rich solutions instead of soil. Compared to traditional soil-based systems, these methods have a number of benefits, such as increased crop yields, quicker growth rates, lower water usage, and the capacity to cultivate plants on arable land. Plants grown hydroponically are grown under regulated conditions where nutrients are dissolved in water and sent straight to the roots of the plants. This technique reduces the risk of soil-borne illnesses and pests, resulting in healthier plants and less dependence on chemicals. It also enables accurate monitoring and adjustment of nutrient levels, pH balance and other environmental parameters, resulting in optimal plant development and health.



Hydroponics

With or without the use of inert media, such as gravel, vermiculite, rockwool, peat moss, sawdust, coir dust, coconut fibre, etc., to offer mechanical support, plants are grown in nutrient solutions that apply all the nutrients required for optimal plant growth.

Benefits of Hydroponics

Increased Crop Yields:

Hydroponics can increase crop yields while reducing water consumption and environmental impact.

Year-Round Crop

Production: By controlling the growing conditions, hydroponics enables farmers to grow crops regardless of external seasonal variations.

Water Conservation: Hydroponics reduces water waste associated with traditional irrigation systems, making it a sustainable solution for urban agriculture.

Improved Crop Quality

Hydroponics enables farmers to control the growing conditions, resulting in improved crop quality and reduced defects.

Reduced Water Consumption

Hydroponics reduces water waste and making it a sustainable solution for urban agriculture.

Increased Efficiency

Hydroponics enables farmers to optimize crop growth and reduce labor costs, resulting in increased efficiency and profitability.

Enhanced Coloration and Fragrance

Hydroponic systems can optimize nutrient concentration, light spectrum and photoperiod to enhance coloration and fragrance of flowers.

Uniform Size and Shape

It promotes uniform growth patterns, resulting in consistent shape and size of flowers, making them more aesthetically appealing and marketable.

Faster Growth Rates

Hydroponics can fasten the flower growth by upto 50%, allowing for quicker turnover and more frequent harvests.

Sustainable agriculture: Hydroponics reduces land and water usage, aligning with the principles of sustainable agriculture

Examples of flowers that can be suitable for

Hydroponic culture

Roses	Amaryllis	Hyacinth
Carnation	Iris	Pansy
Chrysanthemum	Daffodil	Marigold
Gerbera	Freesia	Snapdragon
Orchids	Peace Lily	Alstroemeria
Tulips	Gaillardia	Nasturtiums
Begonias	Geraniums	African violets

Different Methods

Nutrient Film Technique (NFT)

Plants are grown in long, narrow channels with a continuous flow of nutrient rich water. This method is well suited for Orchids.

Drip System

Nutrient solution is delivered directly to the base of each plant, making it highly efficient. This method is highly efficient and suitable for a wide range of flower varieties including roses, gerbera and carnations.

Ebb and Flow System

The growing area is flooded with nutrient solution and then drained back into the reservoir, providing plants with a consistent supply of nutrients. This method is mostly suitable for begonias and geraniums.

Aeroponics

Plant roots are suspended in the air and periodically misted with a nutrient solution, promoting rapid growth and increased nutrient absorption efficiency. This method is mostly suitable for delicate and high value ornamental crops.

Deep Water Culture (DWC)

Plants are grown in a container with a reservoir of nutrient rich water and roots are suspended in the water.

Monitor and adjust the environmental factors

pH level

Slightly acidic to neutral pH range (5.5 to 6.5)

Temperature

Typically maintain the temperature 18-25°C are suitable for most of the floricultural crops

Humidity

Generally 50-70% suitable Lightening Provide adequate artificial lighting such as LED or grow lights

to support photosynthesis and plant growth. Duration and intensity depend on the plant's light requirements.

Monitor Nutrient Levels

Regularly test the nutrient solution for pH, EC and nutrient concentration.

Applications of Hydroponics

Hydroponics is being used in urban agriculture to provide fresh produce to local communities

Cut Flower Production

It can be used to grow high quality cut flowers such as roses, gerbera and carnations.

Potted Plant Production

It can be used to grow potted plants such as African violets and begonias.

Green House Production

References

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2. Kanika. M. 2022. Hydroponics in Floriculture. Krishi Jagran.com.

Hydroponics can be used in green houses to grow a wide range of flowers, including orchids and gerberas with precise control over temperature, humidity and light.

Urban Agriculture

Hydroponics can be used in urban areas to grow flowers, providing fresh produce to local communities and reducing costs.

Conclusion

Hydroponic floriculture is a blooming success, offering numerous benefits and opportunities for growth. By using hydroponics, farmers can increase crop yields, conserve water, reduce the environmental effect and produce high-quality flowers year-round.