



ISO 9001:2015

Innovate Cultivate Elevate: Protected Farming Redefined

www.firmaagro.com





About Us

We excel in the production, distribution, and installation of an extensive array of protective cultivation structures, including polyhouses, nethouses, tunnels, and comprehensive turnkey solutions. Our structures are meticulously crafted to address the varied requirements of farmers and are custom-tailored to adapt seamlessly to diverse climatic and terrain conditions.

Our team of seasoned professionals possesses a wealth of domain expertise, offering adept technical guidance throughout the entire project lifecycle, from initial consultation to seamless execution.

Located in Hosur, Tamil Nadu, our cutting-edge manufacturing facility ensures the production of top-notch solutions that meet the highest standards of quality and innovation.









Services

Elevate your cultivation with our state-of-the-art polyhouse and greenhouse agro solutions. We specialize in creating controlled environments that empower growers to maximize crop yield and quality. Our tailored services encompass everything from climate control and automated irrigation to crop-specific technology integration. By fusing precision with sustainability, we enable year-round cultivation, ensuring optimal conditions for your plants.

Whether you're a horticulturist or a commercial grower, our expertise transforms challenges into opportunities, fostering a future where polyhouses and greenhouses redefine agricultural success. Join us in cultivating innovation under the shelter of cutting-edge agro solutions for a thriving, efficient harvest.







Naturally Ventilated Polyhouse Structure

Top-ventilated polyhouses revolutionize protected farming with features like adjustable ventilation systems, UV-stabilized polyethylene covering, and robust frames. These structures optimize environmental factors through automatic controls, fostering ideal conditions for crop growth.

Benefits include enhanced crop quality, year-round cultivation, pest and disease management, efficient water usage, and optimized resource utilization. Polyhouses offer economic viability by maximizing sunlight exposure and minimizing resource wastage.

Applications cover diverse sectors:

Vegetable Cultivation: Polyhouses support the growth of tomatoes, cucumbers, peppers, and leafy greens, ensuring consistent yields and high-quality produce.

- Floriculture: Roses, gerberas, and carnations thrive in polyhouses, protecting delicate flowers from adverse weather and pests, resulting in premium-quality blooms.
- Herbiculture: Herbs like basil, mint, and cilantro benefit from controlled environments, enhancing aroma, flavor, and medicinal properties to meet the demand for fresh herbs.
- Nursery Propagation: Polyhouses create an ideal setting for propagating seedlings and saplings, providing protection for healthy plant development in nursery operations.

In summary, top-ventilated polyhouses offer a comprehensive solution for modern agriculture, ensuring optimal conditions for diverse crops while maximizing efficiency and sustainability.







Forced Ventilated Structure

Forced ventilated polyhouses are modern agricultural structures designed to optimize crop growth by creating controlled environments that shield plants from adverse weather, pests, and diseases. Typically constructed with metal or PVC pipes covered in polyethylene or polyvinyl chloride (PVC) sheets, these structures use a forced ventilation system involving exhaust fans, intake shutters, and cooling pads. The covering material permits sunlight penetration while retaining heat, establishing a greenhouse effect.

The forced ventilation system ensures efficient air circulation, preventing heat and moisture build-up that could stress or endanger plants. Integrated automated climate control systems monitor and adjust parameters such as temperature, humidity, and CO2 levels, further enhancing growing conditions.

Forced ventilated polyhouses provide temperature regulation, crucial in regions with extreme climatic variations, safeguarding crops from frost, excessive heat, and cold snaps. The structures enable humidity control, preventing fungal diseases and promoting transpiration. Acting as physical barriers, polyhouses mitigate pest and disease risks, reducing reliance on chemical interventions.

The translucent covering material optimizes light exposure, diffusing harmful UV rays and promoting uniform photosynthesis, ensuring consistent crop growth. With the capability to extend growing seasons, forced ventilated polyhouses enable year-round cultivation, enhancing productivity and supporting diversification and crop rotation strategies. In essence, these structures offer versatile and efficient solutions for protected farming, fostering optimal conditions for sustained and high-quality crop production.









Nethouse Structure

Shade net house structures are pivotal in modern agriculture, fostering controlled environments for optimized crop growth and protection. These semi-controlled environments regulate temperature and light, promoting enhanced photosynthesis and ensuring better plant growth. Filtered sunlight from the shade nets prevents sunburn and heat stress, particularly in regions with intense sunlight, while maintaining essential humidity levels for sensitive crops.

A primary function of shade net houses is shielding crops from adverse weather conditions like heavy rain, hail, winds, and extreme temperatures, minimizing physical damage and reducing the risk of crop loss. Acting as barriers against pests, these structures limit the entry of insects, birds, and rodents, thereby decreasing the need for chemical pesticides. The controlled environment restrains disease spread, particularly beneficial for organic farming.

Shade net houses facilitate season extension and crop diversification by providing a sheltered environment, enabling cultivation beyond typical growing seasons. This enhances overall productivity and allows for the year-round cultivation of diverse crops, opening new market opportunities. Additionally, these structures contribute to water conservation by reducing evaporation rates and promoting resource efficiency by minimizing the need for chemical inputs. In essence, shade net houses are instrumental in sustainable crop production, offering benefits ranging from enhanced growth and protection to water conservation and diversified farming practices.









Tunnel Structure

Tunnel structures, also known as hoop houses or polytunnels, are essential in modern agriculture for protected farming. These structures consist of arched hoops covered with polyethylene film, creating a controlled environment to shield crops from adverse weather conditions.

Tunnels provide protection against environmental factors such as wind, rain, hail, frost, and excessive sunlight, fostering a microclimate conducive to crop growth. They regulate temperature by trapping solar radiation during the day and minimizing heat loss at night, extending the growing season and improving yield potential.

Their versatility allows farmers to cultivate crops earlier in the spring and later in the fall, diversifying production and increasing market competitiveness. Tunnels act as a physical barrier against pests and diseases, reducing the need for chemical interventions. They also facilitate efficient water management, conserving resources and minimizing risks like waterlogging or drought stress.

Customizable to different crops and climates, tunnel structures enhance productivity and resource efficiency. Despite initial costs, they offer a high return on investment by improving crop quality and marketability. Tunnel farming contributes to sustainable food systems by optimizing production, mitigating climate risks, and ensuring year-round, locally grown produce. Overall, tunnel structures are invaluable for protected farming, offering benefits from crop protection to economic viability.











Systems & Equipment

Cooling Pad

Our greenhouse cooling system, featuring beehive-shaped cardboard pads for enhanced evaporation, a water system with tanks, pumps, and drippers, alongside exhaust fans, efficiently cools and humidifies, ensuring optimal conditions for plant growth in hot, dry environments. It's a comprehensive solution for maintaining a comfortable greenhouse climate.



Exhaust Fan

Side wall-mounted exhaust fans facilitate air exchanges, replacing internal heat with cooler outside air. Equipped with insect-proof net-covered cages to deter pests and shutters that seal off the greenhouse when fans are inactive, ensuring efficient airflow while preventing unwanted intrusion and maintaining optimal conditions.





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Trellising system

Greenhouse cultivation offers the advantage of trellising crops, a practice not feasible in open field production. The Dutch Trellis method is popular, distributing crop weight evenly. Gable fronts are reinforced with a custom trellis system, featuring cables installed at desired heights. Two lengthwise cables per bed extend from gable to opposite end, creating a supportive network for crop trellising. Various accessories cater to different crop needs. This system optimizes space and enhances crop management in greenhouse environments.



Soil-less Beds

Soil-less cultivation is integral to modern intensive agriculture, allowing precise root system control and drainage water recycling, facilitating multiple growing cycles. Various substrates cater to different growing needs.



Side Curtain Mechanism

The greenhouse side roll-up curtain mechanism allows for efficient ventilation and climate control. Operated manually or automatically, the curtains are rolled up along the sidewalls, regulating airflow, temperature, and humidity. This system ensures optimal growing conditions for plants while facilitating energy savings and environmental control.

Different types of side curtain roll up mechanism:

Normal Pipe rollup curtain assembly

- 27mm / 34 mm OD pipe x 2mm hot dip galvanized pipe section for rollup handle assembly
- Most economical

Chain rollup curtain assembly

- Easy to install and operate
- Reliable performance due to self-locking
- Light weight
- It can open the window upto 3 mtrs offering better ventilation
- Used where there is a Constrain in land area

Motorized Curtain mechanism

- Double limit switch protection
- Accurate limit switch and reliable self locking property
- Water drain added to protect the safety of circuit diagram
- Strengthens processing to output shaft

Anti flap side curtain box and to cover the partition

The anti-flap side roll-up curtain box prevents wind damage and keeps rainwater out of the greenhouse structure. It enhances durability and protection for both the curtain and the greenhouse.





Air Blowers

Air blowers, situated atop crops in the greenhouse, ensure uniform temperature and humidity. Crafted from durable materials resistant to high humidity, they operate quietly with minimal vibration. Their purpose is to establish consistent environmental conditions throughout the greenhouse for optimal plant growth and health.



Rolling Benches

These benches in the greenhouse offer flexibility, available in both movable and fixed configurations. These benches can accommodate various irrigation systems, providing versatility in watering methods to suit different plant needs. Their adaptability and durability make them essential components for optimizing space and cultivation practices in greenhouse environments.



Thermal Shading Screen

Shading screens mitigate excessive radiation in greenhouses when temperature rise poses a greater threat than reduced light. Varied screens offer different shading levels and can be motor-operated via a control system, responding to temperature and radiation sensors. Thermal screens, with reflective undersides, retain emitted heat overnight, maintaining optimal plant temperatures.



Blackout screens

Blackout screens in greenhouses prevent unwanted light infiltration, crucial for controlling photoperiod-sensitive crops. These screens, typically motor-operated and integrated with the greenhouse control system, ensure complete darkness when required. By blocking light transmission, blackout screens help regulate growth cycles and enhance plant development in controlled environments.





Secondary Layer Mechanisms

A double-layer net, when spread, effectively blocks and reflects incident infrared (IR) radiation, reducing temperatures on hot, sunny days. In winter nights, it retains reflected IR radiation beneath, elevating nighttime temperatures and fostering healthier plant growth conditions. This versatile solution optimizes environmental control, maintaining optimal temperatures year-round for plant cultivation.

Movable secondary layer menchanism:

- Rope System
- Manual screen movement with chain pulley
- Motorized screen movement mechanism with GI Crane wire rope
- Motorized rack & pinion system
- Motorized with automation with temperature control sensors

Rope System

In this traditional setup, a secondary layer shade net is manipulated using UV-stabilized rope, with special connectors and pulleys for convenience.



Manual screen movement with chain pulley

Screens are manually moved using a chain pulley system for efficient operation and adjustment in the greenhouse environment.



Motorized screen movement mechanism with GI Crane wire rope

Screen movement is automated using a motorized mechanism employing GI crane wire rope, ensuring precise control and efficient operation in the greenhouse.



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Motorized rack & pinion system

A motorized system utilizing a rack and pinion mechanism for smooth and precise movement, enhancing operational efficiency in greenhouse environments.



Motorized with automation with temperature control sensors

Motorized automation incorporating temperature control sensors for precise environmental regulation, optimizing conditions for plant growth within the greenhouse.









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