Workshop on Implementation Strategy for MIDH

24 January 2014, NAAS Complex, Pusa, New Delhi

Protected Cultivation

NATIONAL COMMITTEE ON PLASTICULTURE APPLICATIONS IN HORTICULTURE (NCPAH)
Why Protected Cultivation...

Better Quality of Produce

Higher Productivity

Nursery Raising and Hardening of Plants

Better insect & disease control & reduced use of pesticides

Off-season Cultivation

Efficient use of Resources
Govt. Initiatives on Protected Cultivation

- **Water Management**
  - Drip Irrigation System
  - Sprinkler Irrigation System

- **Protected Cultivation**
  - Greenhouse
  - Plastic Tunnel
  - Shadenet House
  - Walk in Tunnels
  - Plant Protection Nets

- **Surface Cover Cultivation**
  - Plastic Mulching
  - Soil Solarisation

- **Water Resource Management**
  - Farm Pond & Reservoir lined with Plastic Films

- **Vermi Bed - Organic Farming**

Protected Cultivation Offers
Next Generation Agriculture...
Protected Cultivation – Greenhouse & Shadenet House

Greenhouse is framed structures covered with UV stabilized plastic films in which crops are grown under partially or controlled environment conditions.

Type of Structures
A. Naturally Ventilated – Tubular, Wooden & Bamboo
B. Fad & Pad System

Shadenet house are considered as one of the major technologies to provide development of healthy grafts/seedlings & hardening for various horticultural crops irrespective of climatic conditions.

Advantages
- Moderates temperature & humidity.
- Plant propagation is effective.
- Helps to improve quality and quantity of produce.
- Reduces infestation of disease/pests.
- Savings in water & fertilizer requirements as compared to open field cultivation.
- Reduces gestation period of the crop.
Crops covered under Greenhouse

- Capsicum
- Tomato
- Cucumber
- Cabbage
- Strawberry
- Carnation
- Rose
- Gerbera
- Orchid
Crops under Shadenet House

- Ridge gourd
- Bottle gourd
- Cucumber
- Gerbera
- Anthurium
- Capsicum
- Chilli
- Okra
- Broccoli
- Rose
Walk in Tunnels

- Walk-in tunnels structure is covers with UV film, suitable for all types of crops; flowers and vegetables.
- Designed to withstand wind up to 120km/hr, and trellising loads up to 25 kg/m².
- Structure gable configuration can be 8 or 10 meters wide.
- Height reaches 4.10m (2" pipe) for 8m, and 4.50m (3" pipe) for 10m.
- Option for vertical curtains (2m long) on tunnels side walls.
- 2 or 3 meter height.
Plastic Tunnels

These are miniature structures producing greenhouse like effect. Facilitates the entrapment of carbon dioxide thereby enhancing the photosynthetic activity. It protects plants from harsh climatic conditions such as rain, wind, hail snow etc. These are mainly used for raising nursery.

Advantages

- Protects from hostile climate.
- Helps in early seed germination.
- Round the year cultivation is possible.
- Healthy saplings can be raised.
Plastic Mulching – Insitu Moisture Conservation

Plastic Mulching is covering the soil around the plant with plastic film to conserve the soil moisture that prevents weed growth and regulate soil temperature. Presently there different colour plastic films used as mulches such as black, silver-black, red, yellow, while-black etc.

Advantages

- Prevents weed growth and acts as barrier to soil pathogens.
- Accelerates uptake of micro nutrients from the soil by the active root zone.
- Conserves soil moisture thereby reduces the irrigation water requirement of the crop.
- Enhances quality of the produce with cleaner crop.
Vermi Bed – Organic Farming

✓ The product is chemically treated, UV stabilised and completely stitch-less having ability to withstand extra environmental stress.

✓ Dimension of the bed 12’ x 4’ x 2’ (L x W x H) & Mass 340 gms /sqm (minimum), having fourteen support pockets (40mm X 120mm) for inserting pegs to keep the bed erect.

✓ Three net windows on both sides for ventilation purpose to maintain required humidity to enhanced life span of the earthworms. An reinforced bottom outlets in corner is used for draining vermiwash with drain cover.

✓ Requires less space, can be installed anywhere (allows shifting of structure) with proper ventilation.

✓ Bed produces annually 100 liters of Vermiwash.

✓ Indian Standard (BIS) formulated in 2010.
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<td>1</td>
<td>Mulching</td>
<td>Surface covered cultivation - plastics mulching - code of practice</td>
<td>IS 15177:2002</td>
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<td>Recommendations for Heating, Ventilating and cooling of Greenhouses</td>
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MIDH – Path Forward

- Draft Operational Guidelines on MIDH – specify clearly about irrigation system costs is inclusive in the Costs / sqm for different types of Greenhouse / Shade net Houses.

- The greenhouse structure & cladding material must have BIS standards.

- Walk in Tunnel costs / sqm is also inclusive of irrigation costs need to be specified.

- HDPE Vermi Compost – unit costs is (12’X4’X 2’) for 96 cub ft.

- Unit Costs - Indicative Bill of Materials need to be communicated to States/ UTs.

- Provision for registration of Manufactures / Suppliers of various protected cultivation / accessories as per applicable BIS standards.

- Promote Protected Cultivation Technologies – to disseminate technical specs on protected cultivation, there is a need to organize National level technology specific seminars / workshops.
Research & Extension on Protected Cultivation

National Committee on Plasticulture Applications in Horticulture (NCPAH)

- Policy papers
- Funds disbursement
- Monitoring
- GoI Schemes
- EC meetings
- Evaluation
- Technology Support
- PoPs

SAUs/ICAR/IIT 17 / 4 / 1

Infrastructure Support

Activities of PFDCS

Precision Farming Development Centre 22

State Implementing Agencies

Applied Research
- Farmers Field
- Plasticulture Applications

Demonstrations
- PFDC Farm

Training / Awareness
- Farmers
- Officers

Survey

Workshop / Seminar
- State level
- District level

Extension Programme
- Agri-Events
- Radio/TV Programme
- Staff HRD Programme

Extension Activities for promotion

Farmers & related Stakeholders
Thanks for your attention...