

TYPES OF GREEN HOUSE



PROTECTED CULTIVATION AND
POST HARVEST TECHNOLOGY
(ASAE3204)

TYPES OF GREEN HOUSE

- ❖ Greenhouse type based on shape
- ❖ Greenhouse type based on utility
- ❖ Greenhouse type based on construction
- ❖ Greenhouse type based on covering materials

Greenhouse type based on shape

a) Lean-to type greenhouse

- ❖ A lean-to design is used when a greenhouse is placed against the side of an existing building.
- ❖ It is usually attached to a house, but may be attached to other buildings.

Lean-to type greenhouse



- The lean-to type greenhouse is limited to single or double-row plant benches with a total width of 7 to 12 feet.
- It can be as long as the building it is attached to. It should face the best direction for adequate sun exposure.

Even span type greenhouse

- It is standard type and full-size structure, the two roof slopes are of equal pitch and width.
- Used for the greenhouse of small size, and constructed on level ground.
- It can accommodate 2 or 3 rows of plant benches.
- The cost of an even-span greenhouse is more than the cost of a lean-to type, but it has greater flexibility in design and provides for more plants.

Even span type greenhouse

Even Span



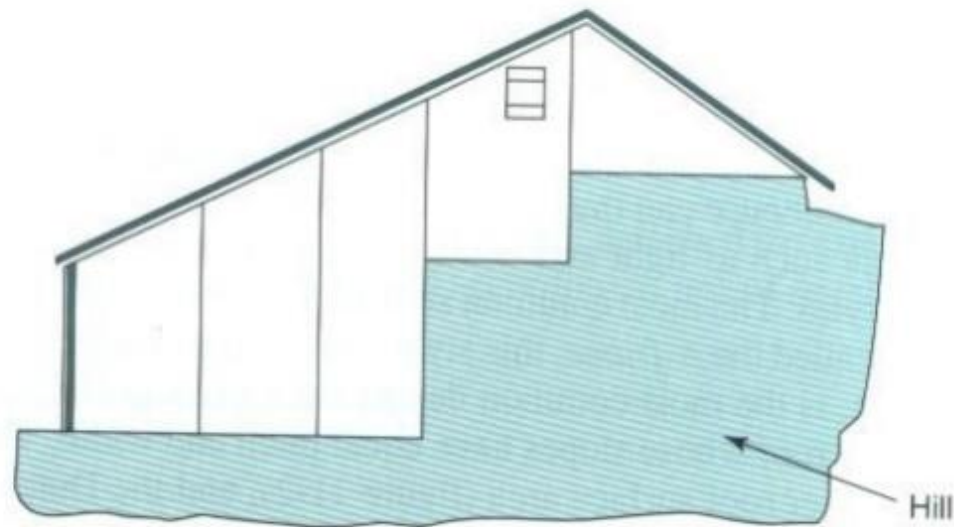
- The design has a better shape than a lean-to type for air circulation to maintain uniform temperatures during the winter heating season.
- A separate heating system is necessary unless the structure is very close to a heated building. It will house 2 side benches, 2 walks, and a wide center bench.
- Several single and multiple span types are available for use in various regions of India.
- For single span type the span in general, varies from 5 to 9 m, whereas the length is around 24 m. The height varies from 2.5 to 4.3 m.

Uneven span type greenhouse

- This type of greenhouse is constructed on hilly terrain. The roofs are of unequal width; make the structure adaptable to the side slopes of hill.

Uneven span type greenhouse

Uneven-span Type



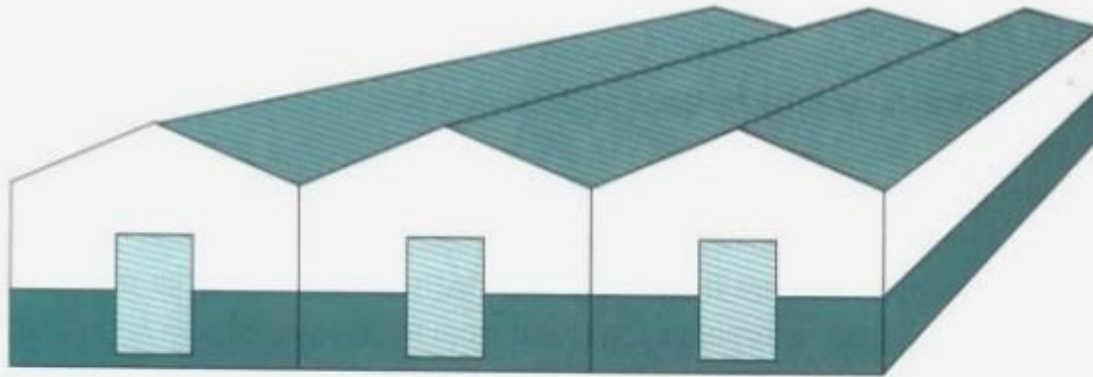
An uneven-span greenhouse design.

Ridge and furrow type greenhouse

- Designs of this type use two or more A-frame greenhouses connected to one another along the length of the eave .
- The eave serves as furrow or gutter to carry rain and melted snow away.
- The side wall is eliminated between the greenhouses, which results in a structure with
 - a. a single large interior,
 - b. Consolidation of interior space
 - c. reduces labour,
 - d. lowers the cost of automation,
 - e. improves personal management and
 - f. reduces fuel consumption as there is less exposed wall area through which heat escapes.
- In spite of snow loads, ridge and furrow greenhouses are effectively used in northern countries of Europe and in Canada and are well suited to the Indian conditions.

Ridge and furrow type greenhouse

Ridge-and-furrow Type



11-7 A ridge-and-furrow greenhouse range.

Saw tooth type Greenhouse

- These are also similar to ridge and furrow type greenhouses except that, there is provision for natural ventilation in this type.
- Specific natural ventilation flow path develops in a saw- tooth type greenhouse.

Saw tooth type Greenhouse

Saw-tooth Type



A saw-tooth greenhouse range.

Quonset greenhouse

- This is a greenhouse, where the pipe arches or trusses are supported by pipe purling running along the length of the greenhouse.
- In general, the covering material used for this type of greenhouses is polyethylene.
- Such greenhouses are typically less expensive than the gutter connected greenhouses and are useful when a small isolated cultural area is required.
- These houses are connected either in free, standing style or arranged in an interlocking ridge and furrow.
- In the interlocking type, truss members overlap sufficiently to allow a bed of plants to grow between the overlapping portions of adjacent houses.
- A single large cultural space thus exists for a set of houses in this type, an arrangement that is better adapted to the automation and movement of labour.

Quonset greenhouse



ASSIGNMENT

1. History of green house
2. Write advantages and disadvantages of:
 - Lean to type
 - Even and uneven type
 - Ridge and furrow
 - Sat tooth type
 - Quonset type