

CLAIMS

1. An apparatus for use in growing a plant crop, the apparatus comprising a structure enclosing a volume in which a crop can be maintained in a controlled environment during the growth of a crop,

the structure housing two endless belts in spaced-apart parallel relationship and mounted for synchronous motion about a closed path,

a trough to removably retain a nutrient solution for a crop,

suspension means to enable a container holding a crop to be suspended between and move with the belts,

the paths of the belts being such as to at least partially immerse the container in nutrient solution and feed a crop at least once on a complete belt circuit;

wherein each belt is mounted to a drive sprocket and the path of the or each belt is defined by a plurality of idler cogs;

wherein the floor of the structure consists of a building roof and the plurality of idler cogs are positionable within the volume of the apparatus to suit the shape of the building roof on which the apparatus is located; and

wherein the structure is formed of a plurality of modules which are installed so as to suit the shape of the building roof; wherein at least one of said modules comprises a single access point from where crops can be removed from the volume of the apparatus.

2. An apparatus according to Claim 1, wherein the suspension means includes a framework to hold one or more containers.

3. An apparatus according to Claim 1 or Claim 2, wherein the suspension means includes a bar or axle attached to and extending between the belts to provide a secure support for the container.
4. An apparatus according to any preceding claim, wherein the drive sprockets are located within the structure.
5. An apparatus according to any preceding claim, wherein the plurality of idler cogs additionally provide support to the belts.
6. An apparatus according to any preceding claim, wherein the drive belt is a drive chain.
7. An apparatus according to any preceding claim, wherein the apparatus includes sensors, such as temperature or humidity sensors said sensors being connected to a display enabling an operative to control the environment within the structure.
8. An apparatus according to Claim 7, wherein the sensors are linked to a processing means and a control means to enable the environment within the structure to be controlled automatically.
9. An apparatus according to any preceding claim, wherein one or more cameras are located within the structure to provide a visual image and/or record of the growth of the plants.
10. An apparatus according to any preceding claim, including a pump to fill and empty the trough of nutrient liquid.
11. An apparatus according to any preceding claim, wherein one or more lasers are mounted within the structure.

12. A method of growing plants, the method comprising the steps of:

(i) providing a structure enclosing a volume in which a crop can be maintained in a controlled environment during the growth of a crop, wherein the floor of the structure consists of a building roof and the structure is formed of a plurality of modules which are installed so as to suit the shape of the building roof, at least one of said modules comprising a single access point,

(ii) placing a plant into a container;

(iii) freely suspending the container between two endless belts, said belts being arranged in spaced-apart parallel relationship and mounted to a drive sprocket and a plurality of idler cogs for synchronous motion about a closed path,

(iv) positioning the plurality of idler cogs within the volume of the structure to suit the shape of the building roof on which the structure is located,

(v) adding a nutrient solution to a trough,

(vi) the path of the belts being such as to at least partially immerse the container and the plant in a nutrient solution to feed and water the plant and then to remove the container and plant from the nutrient solution,

(vii) the path being confined within a space having a controlled environment,

(viii) removing a crop from the volume of the structure via said single access point.