Claims

1. A reusable growing plug, for use in hydroponic systems, wherein at least a portion of the growing plug is flexible, and comprises:

a first surface;

a second surface;

at least one aperture for receiving a growing crop, the aperture extending through the first surface and the second surface; and

a plurality of prongs, coupled to the second surface;

wherein the growing plug has a first configuration and a second configuration, wherein in the first configuration the plurality of prongs are brought together relative to the second configuration, for grasping the growing crop; and

wherein in the second configuration the plurality of prongs are separated relative to the first configuration, for separating the roots of the growing crop.

2. The reusable growing plug of any of claim 1, wherein in the first configuration the growing plug is biased to form a dome, and wherein in the second configuration the growing plug is biased to form an inverse dome, opposite to the first configuration.

3. The reusable growing plug of any of claim 1 or 2, wherein the aperture for receiving a growing crop is cross-shaped.

4. The reusable growing plug of any of the previous claims, wherein the plurality of prongs coupled to the second surface comprises at least four flexible prongs.

5. The reusable growing plug of any of the previous claims, wherein the growing plug is made of rubber.

6. The reusable growing plug of any of the previous claims, further comprising a grip on the first surface for facilitating transitioning between the first and second configurations.

7. The reusable growing plug of any of the previous claims, further comprising a resilient portion, wherein the resilient portion comprises a flange configured to engage with the edges of an aperture for receiving a growing crop in a hydroponic system.

8. A hydroponic system for irrigating a growing crop, the system comprising:

a growing frame, the growing frame comprising a rotating portion;

wherein the rotating portion comprises a plurality of the reusable growing plugs of claims 1 to 7, wherein each of the plurality of reusable growing plugs are configured to fit within a plurality of apertures for receiving the growing crop on the rotating portion.

9. A hydroponic system for irrigating a growing crop, the system comprising:

a growing frame, the growing frame comprising a rotating portion;

wherein the rotating portion comprises: a spiral conduit for receiving nutrient-rich fluid, the spiral conduit comprising a plurality of apertures for receiving the growing crop; and

wherein the spiral conduit comprises an opening for receiving the nutrient-rich fluid into the spiral, such that in use rotation of the spiral conduit feeds the nutrient-rich fluid around the spiral conduit towards the centre of the spiral conduit and past the plurality of apertures for receiving the growing crop.

10. The hydroponic system of claim 9 wherein the opening for receiving the nutrient-rich fluid comprises a scoop.

11. The hydroponic system of claim 9 or 10 wherein the plurality of apertures for receiving the growing crop are arranged on a face of the conduit facing towards the centre of the spiral conduit.

12. The hydroponic system of any of claims 9 to 11 wherein the plurality of apertures for receiving the growing crop are evenly spaced around the spiral.

13. The hydroponic system of any of claims 9 to 12 wherein the growing frame further comprises a static portion to support the rotating portion.

14. The hydroponic system of claim 13 wherein the spiral conduit is supported by the

static portion of the growing frame above a fluid bath, wherein the opening for receiving the nutrient-rich fluid into the spiral conduit is configured to scoop up fluid as the spiral conduit is rotated, and wherein the centre of the spiral is coupled to a flow path for feeding fluid back to the fluid bath.

15. The hydroponic system of any of claims 9 to 14 wherein the spiral is an Archimedean spiral.

16. The hydroponic system of any of claims 9 to 15 wherein the growing frame comprises a plurality of conduits arranged in a plurality of spirals.

17. The hydroponic system of claim 16, wherein the growing frame comprises a pair of conduits arranged as a pair of spirals, wherein the first spiral conduit is offset by 180 degrees from the second spiral conduit in the rotation axis such that the opening for receiving the nutrient-rich fluid is on the opposite side of the first spiral conduit to the opening for receiving the nutrient-rich fluid of the second spiral conduit.

18. The hydroponic system of any of claims 9 to 17 further comprising a strip light source, wherein either (i) the strip light source is held adjacent to the spiral conduit, wherein the length of the strip light source is based on the diameter of the spiral; or (ii) the strip light source is arranged on at least a portion of a face of the conduit facing away from the centre of the spiral.

19. The hydroponic system of claims 9 to 18 comprising a set of tracks, wherein the set of tracks supports a plurality of growing frames of any of the previous claims, and wherein the plurality of growing frames of any of the previous claims are movable on the set of tracks to adjust their separation.

20. The hydroponic system of claims 9 to 19 further comprising a plurality of the reusable growing plugs of claims 1 to 8, wherein each of the plurality of reusable growing plugs are configured to fit within the plurality of apertures for receiving the growing crop on the at least one conduit.