CLAIMS

What is claimed is:

1. A device for farming, the device comprising

a growth tray, the growth tray shaped and dimensioned to receive one or more plants for growth and comprising a base portion for allowing flow of a fluid growth medium;

a frame extending from the growth tray to define a roof portion; the roof portion configured to receive at least one artificial light source, the at least one artificial light source capable of providing illumination to the growth tray to facilitate plant growth; and

a shield mechanism configured to generate an isolated environment within a volume defined by the growth tray, the frame, and the roof portion;

wherein the at least one artificial light source is urged against and contacts the base portion of another device in a manner such that in operation, the flow of the fluid growth medium dissipates heat from the at least one artificial light source.

2. The device according to claim 1, wherein the shield mechanism comprises a plurality of cover panels, wherein each of the cover panels is configured to extend from the roof portion toward the growth tray to define the volume.

3. The device according to claim 1 or 2, wherein the shield mechanism comprises an arrangement of pipes carrying the fluid growth medium, the arrangement of pipes comprising a plurality of outlets arrangement to generate a water wall.

4. The device according to claim 2, wherein the plurality of cover panels comprises at least one of a flexible sheet, a semi-rigid sheet, or a rigid sheet.

5. The device according to any one of the preceding claims, further comprising a carrier to receive the at least one artificial light source, the carrier comprising a compliant material to

urge the at least one artificial light source to maintain contact with the base portion of the another device.

6. The device according to any one of the preceding claims, further comprising an electrical source attached to the frame, the electrical source connected to the at least one light source to provide electrical power thereto.

7. The device according to claim 2, wherein the frame comprises a plate positioned proximate the roof portion to define a slot, the slot dimensioned to slidably receive at least one of the plurality of cover panels.

8. The device according to claim 5, wherein the at least one light source is hingedly connected to the carrier via a plurality of hinge supports.

9. The device according to any one of the preceding claims, wherein the at least one artificial light source comprises a light-emitting diode (LED) assembly.

10. The device according to any one of the preceding claims, further comprising a flow distributor positioned within the growth tray, the flow distributor comprises a pipe having a plurality of outlets to allow the fluid growth medium to flow into the growth tray.

11. A system for farming, the system comprising

a plurality of devices comprising a first device and a second device, the second device stackable on the first device, each of the first and second device comprises:

a growth tray, the growth tray shaped and dimensioned to receive one or more plants for growth and comprising a base portion for allowing flow of a fluid growth medium;

a frame extending from the growth tray to define a roof portion; the roof portion configured to receive at least one artificial light source, the at least one artificial light source capable of providing illumination to the growth tray to facilitate plant growth; and

a shield mechanism configured to generate an isolated environment within a volume defined by the growth tray, the frame, and the roof portion;

wherein the at least one artificial light source of the first device is urged against and contacts the base portion of the second device in a manner such that in operation, the flow of the fluid growth medium within the base portion of the second device dissipates heat from the at least one artificial light source of the first device.

12. The system according to claim 11, further comprising a growth medium delivery and collection network to the plurality of devices.

13. The system according to claim 12, wherein the growth medium delivery and collection network includes a distribution tank, a pipe network, and a collection tank.

14. The system according to claim 13, wherein the distribution tank and the collection tank are integrated, wherein the system further comprises a circulating/recirculating pump arranged in fluid communication with the integrated tank to pump growth medium from the integrated tank to the pipe network, and wherein the integrated tank is configured to receive growth medium from the pipe network.

15. The system according to claim 14, wherein the pipe network comprises one or more flow control valves positioned within one or more pipes of the pipe network.

16. The system according to any one of claims 14 or 15, wherein the pipe network comprises a distribution network of pipes and a return network of pipes.

17. The system according to claim 16, wherein the distribution network of pipes is arranged in a zig-zag configuration, and through a longitudinal axis and a transverse axis of at least one of the first device and the second device, the distribution network of pipes further include a plurality of outlets, the plurality of outlets configured as sprinklers to output fluid growth medium under pressure to generate at least one water wall to the first device and/or the second device.

18. The system according to any one of claims 11 to 17, wherein the shield mechanism comprises a plurality of cover panels, wherein each of the cover panels is configured to extend from the roof portion toward the growth tray to define the volume.

19. The system according to any one of claims 11 to 18, wherein the at least one artificial light source comprises a light-emitting diode (LED) assembly.

20. A method of providing a system for farming, the method comprises
providing the first device and the second device of claim 11;
stacking the second device on the first device; and
contacting the at least one artificial light source of the first device with the second device in a manner such that in operation, the flow of the fluid growth medium within the base portion of the second device dissipates heat from the at least one artificial light source of the first device.