hydroponic and other soilless growing techniques can yield extremely high plant densities, especially in those instances in which either horizontal stacking systems or vertical growth towers are used.

[004] While hydroponic farming techniques offer a number of advantages over conventional farming techniques, in order to achieve large-scale adoption of these techniques it is vital that the cost per plant be competitive with the costs associated with conventional farming techniques. Accordingly, the present invention provides a hydroponic tower that achieves increased planting consistency, increased tower strength, decreased manufacturing time and cost, and simplified maintenance between use cycles.

SUMMARY OF THE INVENTION

[004a] According to an aspect of the present invention, there is provided a multi-piece hydroponic tower, comprising: a tower body, said tower body comprising a rear cavity wall, and first and second cavity side walls extending from opposing edges of the rear cavity wall, thereby defining a first tower cavity, said first tower cavity configured to provide a passageway for a water/nutrient mix; a first tower face plate, wherein an edge portion of said first tower face plate is hingeably coupled to an outer edge of said first cavity side wall of said tower body, wherein said first tower face plate is configured to be positioned relative to said tower body in at least a first tower cavity closed position and a first tower cavity open position via said hingeably coupled edge portion, said first tower face plate comprising a first plurality of plant container cut-outs, said first plurality of plant container cut-outs configured to accept a first plurality of plant containers; and a first fastener configured to temporarily latch said first tower face plate to an outer edge of said second cavity side wall of said tower body when said first tower face plate is in said first tower cavity closed position.

[005] Embodiments of the present invention provides a multi-piece hydroponic tower comprised of (i) a tower body that defines a first tower cavity, where the first tower cavity is configured to provide a passageway for a water/nutrient mix, and where a first edge portion of the tower body includes a first tower body hinge member; (ii) a first tower face plate, where an edge portion of the first tower face plate includes a first face plate hinge member, where the first tower face plate is hingeably coupled to the tower body via the first tower body hinge member and the first face plate hinge member, where the first tower face plate is positionable relative to the tower body in at least a first tower cavity closed position and a first tower cavity open position, and where the first tower face plate includes a first plurality of plant container

cut-outs configured to accept a first plurality of plant containers; and (iii) a first fastener configured to temporarily latch the first tower face plate to the tower body when the first tower face plate is in the first tower cavity closed position. The first fastener may be comprised of a first plurality of fasteners. The first fastener may be comprised of a first snap-fit fastener. The tower body and the first tower face plate may be fabricated from plastic (e.g., polyethylene, polypropylene, polyvinyl chloride, polytetrafluoroethylene, and acrylonitrile butadiene styrene, etc.) and may be white.

[006] The multi-piece hydroponic tower may be a dual-sided hydroponic tower, where the tower body defines a first tower cavity and a second tower cavity, where the first body hinge member of the first edge portion of the tower body corresponds to the first tower cavity, and where the tower body is further comprised of a second tower body hinge member corresponding to a second edge portion, the second tower body hinge member of the second edge portion of the tower body corresponding to the second tower

CLAIMS

1. A multi-piece hydroponic tower, comprising:

a tower body, said tower body comprising a rear cavity wall, and first and second cavity side walls extending from opposing edges of the rear cavity wall, thereby defining a first tower cavity, said first tower cavity configured to provide a passageway for a water/nutrient mix;

a first tower face plate, wherein an edge portion of said first tower face plate is hingeably coupled to an outer edge of said first cavity side wall of said tower body, wherein said first tower face plate is configured to be positioned relative to said tower body in at least a first tower cavity closed position and a first tower cavity open position via said hingeably coupled edge portion, said first tower face plate comprising a first plurality of plant container cut-outs, said first plurality of plant container cut-outs configured to accept a first plurality of plant containers; and

a first fastener configured to temporarily latch said first tower face plate to an outer edge of said second cavity side wall of said tower body when said first tower face plate is in said first tower cavity closed position.

2. The multi-piece hydroponic tower of claim 1, wherein said multi piece hydroponic tower is a dual-sided hydroponic tower, wherein said tower body third and fourth cavity side walls extending from the opposing edges of a second rear cavity wall to define a second tower cavity, said multi-piece hydroponic tower further comprising:

a second tower face plate, wherein an edge portion of said second tower face plate is hingeably coupled to an outer edge of said third cavity side wall of said tower body, wherein said second tower face plate is configured to be positioned relative to said tower body in at least a second tower cavity closed position and a second tower cavity open position via said hingeably coupled edge portion, said second tower face plate comprising a second plurality of plant container cut-outs, said second plurality of plant container cut-outs configured to accept a second plurality of plant containers; and

a second fastener configured to temporarily latch said second tower face plate to an outer edge of said fourth cavity side wall of said tower body when said second tower face plate is in said second tower cavity closed position.

3. The multi-piece hydroponic tower of claim 1 or claim 2, said first fastener comprising a first snap-fit fastener.

4. The multi-piece hydroponic tower of claim 2 or claim 3, said second fastener comprising a second snap-fit fastener.

5. The multi-piece hydroponic tower of claim 2, further comprising:

a first plurality of vertical ridges formed on the rear cavity wall; and

a second plurality of vertical ridges formed on the second rear cavity wall.

6. The multi-piece hydroponic tower of claim 5, said first plurality of vertical ridges of uniform width, and said second plurality of vertical ridges of uniform width.

7. The multi-piece hydroponic tower of claim 2, further comprising:

a first V-shaped groove running along a first side of said tower body, said first V-shaped groove centered between said first tower cavity and said second tower cavity; and

a second V-shaped groove running along a second side of said tower body, said second V-shaped groove centered between said first tower cavity and said second tower cavity.

8. The multi-piece hydroponic tower of claim 7, said first V-shaped groove formed from a first side wall portion corresponding to said first tower cavity and a second side wall portion corresponding to said second tower cavity; and said second V-shaped groove formed from a third side wall portion corresponding to said first tower cavity and a fourth side wall portion corresponding to said second tower cavity.

9. The multi-piece hydroponic tower of claim 2 wherein

said first cavity side wall flares out relative to said rear cavity wall when said first tower face plate is positioned in said first tower cavity open position, and wherein said second cavity side wall flares out relative to said rear cavity wall when said first tower face plate is positioned in said first tower cavity open position; and

said third cavity side wall flares out relative to said second rear cavity wall when said second tower face plate is positioned in said second tower cavity open position, and wherein said fourth cavity side wall flares out relative to said second rear cavity

wall when said second tower face plate is positioned in said second tower cavity open position.

10. The multi-piece hydroponic tower of claim 9, wherein said first cavity side wall is at an angle of approximately 100 degrees relative to said rear cavity wall when said first tower face plate is positioned in said first tower cavity open position, wherein said second cavity side wall is at an angle of approximately 100 degrees relative to said rear cavity wall when said first tower face plate is positioned in said first tower cavity open position, wherein said third cavity side wall is at an angle of approximately 100 degrees relative to said second rear cavity wall when said second tower face plate is positioned in said second tower cavity open position, and wherein said fourth cavity side wall is at an angle of approximately 100 degrees relative to said second rear cavity wall when said second tower face plate is positioned in said second tower cavity open position.

11. The multi-piece hydroponic tower of claim 9, wherein said first cavity side wall is approximately perpendicular to said rear cavity wall when said first tower face plate is positioned in said first tower cavity closed position, wherein said second cavity side wall is approximately perpendicular to said rear cavity wall when said first tower face plate is positioned in said first tower cavity closed position, wherein said third cavity side wall is approximately perpendicular to said second rear cavity wall when said second tower face plate is positioned in said second tower cavity closed position, and wherein said fourth cavity side wall is approximately perpendicular to said second rear cavity wall when said second tower face plate is positioned in said second tower cavity closed position.

12. The multi-piece hydroponic tower of claim 1 wherein

a first edge portion of said tower body includes a first tower body hinge member and

an edge portion of said first tower face plate includes a first face plate hinge member, wherein said first tower face plate is hingeably coupled to said tower body via said first tower body hinge member.

13. The multi-piece hydroponic tower of claim 2 wherein:

a first edge portion of said tower body includes a first tower body hinge member and

an edge portion of said first tower face plate includes a first face plate hinge member, wherein said first tower face plate is hingeably coupled to said tower body via said first tower body hinge member and said first face plate hinge member;

a second edge portion of said tower body includes a second tower body hinge member and

an edge portion of said second tower face plate includes a second face plate hinge member, wherein said second tower face plate is hingeably coupled to said tower body via said second tower body hinge member and said second face plate hinge member.

14. The multi-piece hydroponic tower of claim 1 or any claim dependent thereon, wherein the edge portion of said first tower face place is non-removably hingeably coupled, without applying excessive force, to the other edge of said first cavity side wall of said tower body.

15. The multi-piece hydroponic tower of claim 2 or any claim dependent thereon, wherein the edge portion of said second tower face plate is non-removably hingeably coupled, without applying excessive force, to the outer edge of said third cavity side wall of said tower body.