Claims

1. An automated system for growing organic plants, comprising:

a tray rotation system comprising:

a tray rack for receiving trays containing used grown material; and

a stock bin for collecting the used grown material,

wherein the tray rotation system is configured for rotating each tray received by the tray rack to transfer the used grown material in the tray into the stock bin;

a screening system comprising:

an elevator to transfer the used grown material in the stock bin;

a rotary screening machine for receiving the used grown material from the elevator, the rotary screening machine configured for removing sundries from the used grown material; and

a batching stock bin for receiving the used grown material after screening;

a disinfection system for receiving the screened grown material from the batching stock bin and disinfecting the screened grown material;

a loading system for receiving the disinfected grown material from the disinfection system and loading the disinfected grown material into empty trays;

a sowing system for sowing plants on the grown material in the trays;

a parallel-moving growing system comprising a plurality of parallel rows, each row configured for loading the trays with the sowed plants;

a watering system for watering the sowed plants in the trays while the rows are moving forward in a direction perpendicular to the rows;

a picking system for harvesting and sorting matured plants from the trays;

a packaging system for packaging the matured plants into packages; and

a conveyor system for transferring the trays between the systems.

2. The system according to claim 1, wherein the empty trays are transferred, by the conveying system, from the tray rotation system to the loading system after the used grown material are transferred into the stock bin.

3. The system according to claims 1 or 2, wherein the trays are returned to the tray rotation system after the matured plants have been harvested from the trays, the trays containing material which have been used for growing the matured plants, wherein the used grown material in the returned trays is transferrable into the stock bin.

4. The system according to any one of claims 1 to 3, further comprising a stirrer system for stirring the grown material in the batching stock bin.

5. The system according to any one of claims 1 to 4, wherein the watering system is configured for discharging a curtain of water, such that the rows of trays are watered sequentially while moving through the curtain of water.

6. The system according to claim 5, further comprising an actuation system for moving the plurality of rows forward.

7. The system according to claim 6, wherein the actuation system comprises a screw variable frequency motor for controlling a speed of moving the rows, thereby controlling an amount of water received by each row while moving through the curtain of water.

8. The system according to any one of claims 1 to 7, further comprising an environment control system for controlling temperature and humidity levels in the trays.

9. The system according to any one of claims 1 to 8, wherein the trays are made of a stainless steel material.

10. The system according to any one of claims 1 to 9, wherein the plants comprise at least one of organic vegetables, organic fruits, organic crude medicines, and organic tobaccos.

11. An automated method for growing organic plants, comprising:

feeding, by a conveyor system, trays containing used grown material into a tray rotation system comprising a stock bin;

rotating each tray to transfer the used grown material in the tray into the stock bin;

elevating the used grown material in the stock bin to transfer to a rotary screening machine;

screening, by the rotary screening machine, to remove sundries from the used grown material;

transferring the used grown material to a batching stock bin after screening;

feeding the screened grown material from the batching stock bin to a disinfection system for disinfecting the screened grown material;

loading the disinfected grown material from the disinfection system into empty trays;

sowing plants on the grown material in the trays;

loading the trays with the sowed plants onto a plurality of rows configured for moving forward in a direction perpendicular to the rows;

watering the sowed plants in the trays while the rows are moving;

harvesting and sorting matured plants from the trays;

packaging the matured plants into packages.

12. The method according to claim 11, wherein the empty trays are transferred, by the conveying system, from the tray rotation system to the loading system after the used grown material are transferred into the stock bin.

13. The method according to claims 11 or 12, further comprising returning the trays to the tray rotation system after the matured plants have been harvested from the trays, the trays containing material which have been used for growing the

matured plants, wherein the used grown material in the returned trays is transferrable into the stock bin.

14. The method according to any one of claims 11 to 13, further comprising adding an amount of new material into the batching stock bin in response to a determination that there is insufficient used grown material in the batching stock bin.

15. The method according to any one of claims 11 to 14, further comprising stirring the grown material in the batching stock bin.

16. The method according to any one of claims 11 to 15, wherein watering the sowed plants comprises discharging a curtain of water, such that the rows of trays are watered sequentially while moving through the curtain of water.

17. The method according to claim 16, further comprising controlling a speed of moving the rows, thereby controlling an amount of water received by each row while moving through the curtain of water.

18. The method according to any one of claims 11 to 17, further comprising controlling temperature and humidity levels in the trays.

19. The method according to any one of claims 11 to 18, further comprising weighing the matured plants before packaging them.