CLAIMS

1. Apparatus (1) for rearing insects in a high-rack warehouse, comprising a storage region (2) having at least one high rack (3) and a storage logistics facility, wherein boxes can be stored in the at least one high rack (3) in a stackable manner and the boxes can be transported and/or ejected within the storage region (2) by means of the storage logistics facility, wherein insects are located in the boxes,
characterized in that a supply portal (5) is arranged on the at least one high rack (3), wherein the boxes are storable in the high rack (3) in a stackable manner and are transportable from the at least one high rack (3) to the supply portal (5) by means of the storage logistics facility, and the state of the box contents within the box are determinable by means of the supply portal (5), and the insects in the boxes are suppliable with the supply portal (5), and/or the boxes are ejectable.

2. Apparatus according to claim 1, characterized in that a box has box contents in the form of insects, insect skins, insect eggs, feces, substrate, and/or feed.

3. Apparatus according to either claim 1 or claim 2, characterized in that the storage logistics facility is a storage and retrieval device (4), a shuttle, or a flow rack.

4. Apparatus according to at least one of claims 1 to 3, characterized in that the supply portal (5) has at least one buffer region in which the boxes transported from the storage logistics facility to the supply portal (5) can be temporarily stored.

5. Apparatus according to at least one of claims 1 to 4, characterized in that the supply portal (5) has at least one detection device with which the parameters required for insect rearing, in particular humidity and temperature, can be determined inside a box.

6. Apparatus according to claim 5, characterized in that the detection device has at least one sensor and/or an apparatus for recording and/or data transmission, in particular a camera.

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7. Apparatus according to either claim 5 or claim 6, characterized in that the parameters determined by the detection device, which reflect the state of the contents in one of the boxes, can be compared with a reference database, so that in particular the relevant state of the box contents and/or the degree of maturity of the insects within a box can be determined.

8. Apparatus according to claim 7, characterized in that the data obtained by comparing the determined parameters with the reference database can be used for machine learning of the detection device.

9. Apparatus according to claim 8, characterized in that the data obtained can be used for the automated optimization of the production parameters, in particular the formulation and dosage of the feed.

10. Apparatus according to at least one of the preceding claims, characterized in that the supply portal (5) has at least one supply module with which the insects in a box can be supplied with supply materials, in particular feed and substrate.

11. Apparatus according to at least one of the preceding claims, characterized in that the supply portal (5) has at least one cleaning module with which parts of the box contents, in particular skins of insects, feces, and feed residues, can be removed from a box.

12. Apparatus according to claim 11, characterized in that the cleaning module has at least one suction apparatus with which the parts of the box contents to be removed can be removed from a box by suction or air classification.

13. Apparatus according to either claim 11 or claim 12, characterized in that the cleaning module has at least one electrical device with which the part of the box contents to be removed can be removed from a box by electrostatics.

14. Apparatus according to at least one of the preceding claims, characterized in that it has at least one hatching region (7).

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15. Apparatus according to claim 14, characterized in that the hatching region (7) has an incubator for incubating insect eggs and/or insect pupae.

16. Apparatus according to at least one of the preceding claims, characterized in that it has at least one pupae processing region (9).

17. Apparatus according to at least one of claims 14 to 16 that it has at least one separating device (10) with which the insect eggs and/or insect pupae or the larvae and/or insects hatched in the hatching region (7) and/or pupae processing region (9) and/or in the high-rack warehouse hatched larvae and/or insects can be separated from the rest of the box contents.

18. Apparatus according to at least one of claims 14 to 17, characterized in that it has a supply device (10) with which the insect eggs, insect pupae, hatched larvae, and/or insects can be supplied with supply material.

19. Apparatus according to at least one of the preceding claims, characterized in that there is at least one emptying region (11) in which the boxes can be unstacked and the box contents can be removed from the boxes.

20. Apparatus according to claim 19, characterized in that the emptying region (11) has an emptying device (12) with which the unstacking of the boxes and the removal of the box contents from the boxes can be carried out.

21. Apparatus according to either claim 19 or claim 20, characterized in that the emptying region (11) has at least one cleaning device (13) with which the unstacked and emptied boxes can be cleaned.

22. Apparatus according to at least one of claims 19 to 21, characterized in that at least one separation region (14) is present, in which the box contents emptied from the boxes can be separated into products, intermediate products, and other box contents.

23. Apparatus according to claim 22, characterized in that the box contents emptied from the boxes can be transported in the form of bulk material to the separation region (14).

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24. Apparatus according to at least one of claims 19 to 22, characterized in that there is at least one buffer region (15) in which empty and/or cleaned boxes can be kept.

25. Apparatus according to at least one of the claims, characterized in that it has at least one filling region (16) in which the boxes can be filled with feed, insects, insect eggs, or a combination thereof.

26. Apparatus according to claim 25, characterized in that the filling region (16) has at least one upstream supply portal (17) for filling the boxes.

27. Apparatus according to claim 26, characterized in that an upstream supply portal (17) is present for at least one stage of the insects.

28. Apparatus according to claim 25, characterized in that the filling region has at least one filling line in which the filling of the boxes takes place.

29. Apparatus according to at least one of the preceding claims, characterized in that it has at least one conveyor system (18) with which in particular the boxes or stacked or palletized stacks of boxes can be conveyed out of and into the storage region (2).

30. Apparatus according to claim 29, characterized in that the conveyor system (18) is wholly or partially a driverless transport system.

31. Apparatus according to at least one of the preceding claims, characterized in that it has at least one delivery region (20) to which materials, in particular feed for rearing the insects, can be delivered.

32. Apparatus according to claim 26, characterized in that at least one feed raw material silo (22) is arranged at the delivery region (20).

33. Apparatus according to at least one of the preceding claims, characterized in that it has at least one product silo (23) in which a product obtained from the rearing of the insects can be stored.

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34. Apparatus according to at least one of the preceding claims, characterized in that the storage region (2) has at least one air conditioning device with which the air properties within the storage region (2) can be regulated.

35. Apparatus according to at least one of the preceding claims, characterized in that the storage region (2) on the at least one supply portal (5) arranged on the high rack (3) has at least one platform (19) for maintenance, for manual intervention, and for manual loading of the supply portal (5).

36. Apparatus according to at least one of the preceding claims, characterized in that the storage region (2) is designed in a silo design, so that the at least one high rack (3) is used as a supporting element for at least one outer facade.

37. Apparatus according to claim 36, characterized in that the at least one high rack (3) used as a supporting element for at least one outer facade has insulation with a vapor barrier, so that the storage region (2) is shielded from the outside.

38. Method for rearing insects in a high-rack warehouse with an apparatus according to at least one of claims 1 to 37, **characterized in that** a stack of boxes is taken from at least one high rack (3) and transported to a supply portal (5), wherein for each of the boxes transported into the supply portal (5) the state of the box contents of the relevant box is determined by means of the supply portal (5) and the boxes are ejected or supplied depending on the determined state thereof, wherein, after the supply, the respective boxes are transported back into the at least one high rack (3).

39. Method according to claim 38, characterized in that the boxes transported into and out of the at least one high rack (3) are stored in the at least one high rack (3) according to a chaos principle or another form of storage optimization.

40. Method according to either claim 38 or claim 39, characterized in that the boxes transported to the supply portal (5) are transported from this supply portal (5) to another supply portal.

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41. Method according to at least one of claims 38 to 40, characterized in that the substrate and/or feed is/are removed from boxes that are ready to be harvested so that the insects empty their intestines.

42. Method according to claim 41, characterized in that the removal of the substrate and/or feed is carried out 1 to 5 days before the ejection of the box ready for harvest.

43. Method according to at least one of the preceding claims 38 to 42, characterized in that ejected, harvest-ready boxes are unstacked and emptied.

44. Method according to claim 43, characterized in that the unstacked and emptied boxes are cleaned.

45. Method according to either claim 43 or claim 44, characterized in that the boxes are stored and kept available for further use.

46. Method according to at least one of claims 43 to 45, characterized in that the emptied box contents is separated into products, intermediate products, and other box contents.

47. Method according to claim 46, characterized in that the intermediate products are filled into boxes for further rearing.

48. Method according to either claim 46 or claim 47, characterized in that the product is preserved as a living product or inactivated and shredded.

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