

CLAIMS

1. Process for rearing insects, comprising growth phases during which the insects are stored in a controlled environment, said growth phases alternating
5 with operating sequences during which at least one specific rearing operation is carried out,

characterized in that ~~it-the process~~ comprises an operating sequence called a synchronization sequence ~~(Figure 4)~~ during which a batch of insects is sorted and distributed into several categories of size or maturity in different
10 containers, then said containers ~~(31, 32)~~ are grouped together in order to constitute basic rearing units (BU) comprising a predefined number of containers ~~(31, 32)~~, a basic unit (BU) comprising only insects of the same category.

2. Rearing process according to claim 1, in which the synchronization sequence ~~(Figure 4)~~ is conducted several times on each insect during said
15 process.

3. Rearing process according to claim 1 or claim 2, comprising at least one sequence called concentration/dilution sequence ~~(Figure 5)~~ of the insects, in which the density of insects in each container ~~(31, 32)~~ of a rearing unit is brought to a target density by the addition of insects, the removal of insects, or the
20 distribution of the insects in containers ~~(31, 32)~~, the target density corresponding to a desired predetermined density at the start of the subsequent storage phase.

4. Rearing process according to claim 3, in which the target density corresponds to the density for which it is estimated that, taking account of the expected growth of the insects during the subsequent storage phase, the desired
25 time interval separating the current concentration/dilution sequence from a following concentration/dilution sequence will end with a density considered maximal guaranteeing the good health of the insects in the containers ~~(31, 32)~~.

5. Rearing process according to claim 3, in which the target density is defined by a ratio of the density in the containers ~~(31, 32)~~ before the
30 concentration/dilution sequence.

6. Rearing process according to one of claims 3 to 5, in which a density of insects is either:

- a weight of insects by volume or by surface area of the container ~~(31, 32)~~; or
- a number of insects by volume or by surface area of the container ~~(31, 32)~~.

5 7. Rearing process according to one of the preceding claims, said process combining:

- a process called production process, for insect rearing from the egg or from the juvenile stage up to the larval stage with a predefined maturity; ~~or~~ and
- a process called reproduction process, for insect rearing from the egg or from the juvenile stage up to the young adult stage, associated with a process called egg-laying process, relating to the production of eggs or juveniles by adult insects.

15 8. Rearing process according to one of the preceding claims, comprising, between each growth phase, a step of automated transport of the basic rearing units (BU) containing the insects that are to be the subject of at least one operating sequence, from a storage zone in which said growth phase takes place, to an operating zone comprising work stations suitable for rearing operations of the operating sequence.

20 9. Rearing process according to one of the preceding claims, comprising operating sequences for feeding.

10. Rearing process according to one of the preceding claims, comprising operating sequences for providing water.

25 11. Rearing process according to one of the preceding claims, comprising an operating sequence for the withdrawal of adult insects intended for egg laying.

12. Rearing process according to one of the preceding claims, comprising the following operating sequences:

- collecting eggs from the rearing containers ~~(31, 32)~~ containing insects intended for egg-laying,
- concentrating eggs in rearing containers ~~(31, 32)~~.

13. Rearing process according to one of the preceding claims, comprising the following operating sequences:

- collecting juveniles from the rearing containers ~~(31, 32)~~ containing insects intended for egg-laying,

- concentrating juveniles in rearing containers ~~(31, 32)~~.

14. Rearing process according to one of the preceding claims, comprising an operating sequence of emptying and cleaning rearing containers ~~(31, 32)~~ for reuse thereof.

15. Rearing process according to one of the preceding claims, in which the operating sequences comprise the ordered succession of several operations among the following operations:

- 10 • Storing ~~(S10)~~ a basic rearing unit in a controlled environment;
- Removing ~~(S1)~~ a basic rearing unit from storage;
- Partially or totally degrouping ~~(S2)~~ the rearing containers from a basic rearing unit;
- 15 • Grouping together ~~(S9)~~ rearing containers into a basic rearing unit;
- Depositing ~~(S8)~~ rearing substrate in a rearing container;
- Providing water in a rearing container;
- Emptying ~~(S3)~~ a rearing container;
- 20 • Identifying the individuals having symptoms of disease in order to remove them from the container.
- Separating the fine waste, comprising the droppings, the remains of the substrate and the molts, from the insects;
- Separating the mature live larvae and the substrate that has not been consumed;
- 25 • Separating the dead larvae from the live larvae;
- Grading (S6) the larvae according to their size;
- Sorting the adult insects from the larvae and the nymphs;
- Sorting the live insects from the dead insects;
- 30 • Sorting the eggs from the adults and sorting the eggs from the substrate;
- Sorting the nymphs from the larvae;
- Cleaning ~~(S4)~~ a rearing container;

- Filling ~~(S7, S7')~~ a rearing container with insects;
- Taking a rearing unit from rearing and sending it to another process;
- Introducing a new rearing unit;
- Throwing away the contents of a rearing container.

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16. Process according to claim 15, in which the synchronization sequence is carried out at the larval stage by implementation of a grading sequence of the larvae comprising the following operations:

- Removing ~~(S1)~~ a basic rearing unit from storage;
- Partially or totally degrouping ~~(S2)~~ the rearing containers from a basic rearing unit;
- Emptying ~~(S3)~~ the rearing containers;
- Cleaning ~~(S4)~~ the rearing containers;
- Separating ~~(S5)~~ the droppings and the live larvae;
- Grading ~~(S6)~~ the larvae according to their size;
- Filling ~~(S7)~~ the rearing containers with the live larvae;
- Depositing ~~(S8)~~ rearing substrate in the rearing containers;
- Grouping together ~~(S9)~~ the rearing containers into a basic rearing unit;
- Storing ~~(S10)~~ the basic rearing units in a controlled environment;

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17. Process according to one of claims 3 to 5 and claim 13, in which the operating sequence of concentration/dilution comprises the following operations:

- Removing ~~(S1)~~ a basic rearing unit from storage;
- Totally degrouping ~~(S2)~~ the rearing containers from the basic rearing unit;
- Emptying ~~(S3)~~ the rearing containers;
- Cleaning ~~(S4)~~ the rearing containers;
- Separating ~~(S5)~~ the droppings and the live larvae;
- Filling ~~(S7')~~ the rearing containers with insects, to the desired density;

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- Depositing ~~(S8)~~ rearing substrate;
- Grouping together ~~(S9)~~ the rearing containers into basic rearing units;
- Storing ~~(S10)~~ the basic rearing units in a controlled environment;

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18. Process according to claim 16 or claim 17, also comprising an operation of providing water.