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(54) **Attracting and catching device for agricultural insect.**

(57) The present invention provides attracting and catching device for agricultural insect, including a base, a motor, a support frame, a trapping device and a storage device; said support frame includes a spindle, at least three sets of first fixing discs and at least three sets of second fixing discs, said first fixing discs being located above said second fixing discs, said first fixing discs and said second fixing discs being evenly set around said spindle. The trap has a reasonable structure and can be used for sorting and capturing a variety of insects or specifically for a particular insect, avoiding killing beneficial insects, being green and environmentally friendly, allowing timely sorting and collection of insects, facilitating the use of insect resources and research, being safe and efficient, and achieving the purpose of green and environmentally friendly capture of agricultural insects.

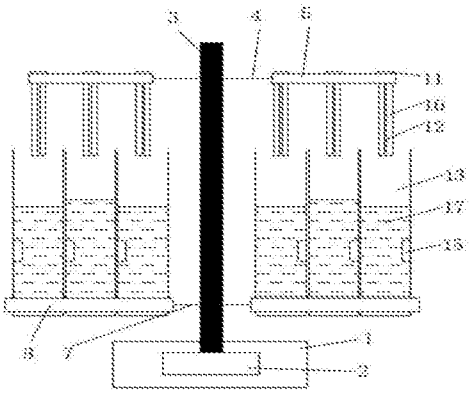


Fig 1

# Attracting and catching device for agricultural insect

## Technical field

The invention belongs to the field of insect catching tools, and particularly relates to an attracting and catching device for agricultural insects.

## Background technology

The control and extermination of pests has always been a key issue in agricultural production. At present, there are several main control methods, such as chemical control technology, black light or frequency vibration light trapping technology or capture device.

The application of chemical control is relatively common, but chemical control will bring a series of problems, such as high pesticide residues, damage to the environment, the decline in the number of natural enemies and biodiversity, and biological pesticides suffer from high cost, short efficacy and pest resistance. The black light lamp or frequency vibration lamp trapping and killing technology has the problems that the black light lamp or frequency vibration lamp trapping and killing technology can only play a role at night and is basically ineffective in the daytime, and part of beneficial insects and natural enemies are also killed at the same time.

Insects are not only the natural enemies of crops, but also can be used as feed for poultry, and even as health food for human consumption, such as crickets, locusts, cicadas, etc., in which crickets have the functions of spasmolysis, fever reduction, blood pressure reduction, diuresis and detumescence, while the use of chemical control methods makes the residual pesticides in insects, which is not conducive to the use of insect resources. Insects trapped and killed can not be collected in time by using a black light lamp or a frequency vibration lamp trapping and killing technology, and the existing agricultural insect trapping device can not separately trap different insects, which is not conducive to later research and utilization of different kinds of insects, so an all-weather, safe and efficient control method is urgently needed in production practice.

## Summary of the invention

In order to overcome the defects of the prior art, the invention provides an attracting and catching device for agricultural insects.

In order to achieve the purpose, the invention provides the following technical scheme:

An attracting and catching device for agricultural insects, which comprises a base, a motor, a support frame, an attracting and catching device and a storage device;

The support frame comprises a main shaft, at least three groups of first fixed disks and at least three groups of second fixed disks, wherein one fixed disk is positioned above the second fixed disk, and the first fixed disks and the second fixed disks are uniformly arranged around the main shaft;

The motor is arrange in that base, one end of the main shaft penetrates through the base and is connecte with an output shaft of the motor, each group of the first fixed disks comprises a first connecte rod and a first disk body, The other end of the first connecting rod is fixedly connected with the main shaft;

Ach group of the second fixed disks comprises a second connecting rod and a second disk body, wherein the second disk body is of an annular structure, a plurality of second through holes are uniformly formed in the second disk body around the center of a circle, one end of each second connecting rod is fixedly connected with each second disk, the other end of each second connecting rod is fixedly connected with the main shaft, each first through hole is opposite to one second through hole, The diameter of the second through hole is greater than the diameter of the first through hole;

The trapping device comprises a plurality of first barrel bodies, the side walls of which are formed by a high-voltage power grid, wherein the tops of the first barrel bodies are provided with barrel covers, the bottoms of the barrel covers are connected with trap lamps, different trap agents are placed in each first barrel body, the diameter of the outer wall of each first barrel body is the same as that of each first through hole, and one first barrel body is placed in each first through hole;

And that storage device comprise a plurality of second barrel bodies, the out diameter of the second barrel bodies is the same as the diameter of the second through holes, the side wall at the lower end of each second barrel body is provide with a stop block, and one second barrel body is placed in each second through hole.

Preferably, clear water is placed in the second bucket body.

Preferably, the inner wall of the second bucket body is provided with a heating rod.

Preferably, the attractant is an insect or mite pheromone.

Preferably, the attractant is a sex pheromone.

Preferably, the inner wall of the second bucket body is coated with a smooth material.

Preferably, the insect attracting lamp is an incandescent lamp or a fluorescent lamp or a light-emitting diode.

The luring and catching device for agricultural insects provided by the invention has a reasonable structure and comprises a trapping device and a storage device, wherein the trapping device comprises a plurality of first barrel bodies, the storage device comprises a plurality of second barrel bodies, each first barrel body corresponds to one second barrel body, and different insects are lured through luring lamps in different first barrel bodies and different luring agents, Then the high-voltage power grid on the side wall of the first barrel is used for corona or even electrocution of the insects when the insects fly close to the first barrel, and the corona or electrocuted insects directly fall into the corresponding second barrel body below, so that the insects are collected in time. The trap can classify and trap a plurality of insects, can also specially trap a certain insect, avoids killing beneficial insects, avoids using chemical pesticides, is green and environment-friendly, improves the biodiversity, can classify and collect the insects in time, is beneficial to the utilization and research of insect resources, continuously traps the insects day and night, is safe and efficient, and achieves the purpose of green and environment-friendly trapping of agricultural insects.

**Description of the drawings**

Description of the drawings fig. 1 is a schematic structural diagram of an agricultural insect trap according to Embodiment 1 of the present invention;

Fig. 2 is a top view of the support frame;

Fig. 3 is a structural diagram of the first bucket body;

Fig. 4 is a structural diagram of the second bucket body.

**Detailed description of the invention**

Embodiments of the present invention are further described below with reference to the accompanying drawings. The follow examples use only

It is intended to more clearly illustrate the technical solution of the present invention and not to limit the scope of protection of the present invention.

Example 1

The present invention provides an attracting and catching device for agricultural insects, specifically as shown in fig. 1 to fig. 4, which comprises a base 1, a motor 2, a support frame, a trapping device and a storage device. The trapping device is used for trapping insects, the storage device is used for collecting the trapped insects, and both the trapping device and the storage device are placed on the supporting frame.

The support frame comprises a main shaft 3, at least three groups of first fixed disks and at least three groups of second fixed disks, wherein the first fixed disks are positioned above the second fixed disks, and the first and second fixed disks are uniformly arranged around the main shaft 3. In this embodiment, the number of the first fixed trays and the number of the second fixed trays may be determined according to the number or actual demand of the insects in the farmland. The embodiment also comprises a power supply device which is also placed in the base 1, the motor 2 is electrically connected with the power supply device, and the power supply device can be a rechargeable battery.

The motor 2 is arranged in the base 1, one end of the main shaft 3 passes through the base 1 and is connected with an output shaft of the motor 2, each group of first fixed discs comprises a first connecting rod 4 and a first disc body 5, the first disc body 5 is in an annular structure, a plurality of first through holes 6 are uniformly formed in the first disc body around the center of a circle, one end of the first connecting rod 4 is fixedly connected with the first disc bodies 5, And that other end of the first connecte rod 4 is fixedly connected with the main shaft 3.

Each group of second fixed disks comprises a second connecting rod 7 and a second disk body 8, wherein the second disk body 8 is of an annular structure, a plurality of second through holes 9 are uniformly formed around the center of the circle, one end of the second connecting rod 7 is fixedly connected with the second disk body, the other end thereof is fixedly connected with the main shaft 3, each first through hole 6 is opposite to one second through hole 9, The diameter of the second through hole 9 is larger than the diameter of the first through hole 6. In this embodiment, the number of the first through holes 6 and the number of the second through holes 9 are both five.

The trapping device comprises a plurality of first barrel bodies 10, the side walls of which are formed by a high-voltage power grid, wherein the top of each first barrel body 10 is provided with a barrel cover 11, the bottom of the barrel cover 11 is connected with an insect attracting lamp 12, different insect attractants are placed in

each first barrel body 10, the diameter of the outer wall of each first bucket body 10 is the same as that of a first through hole 6, and one first bucket body 10 is placed in each first through hole 6. In this embodiment, the bucket cover 11 is screwed or fastened to the first bucket body 10, and the outer diameter of the bucket cover 11 is greater than the diameter of the first through hole 6, so that when the first bucket body 10 is placed into the first through hole 6, the bucket cover is clamped on the first tray body 5 to prevent the first barrel body 10 from sliding down from the first though hole 6.

The storage device comprises a plurality of second barrel bodies 13, the outer diameter of the second barrel bodies 13 is the same as the diameter of the second through holes 9, a stop block 14 is arranged on the side wall at the lower end of each second barrel body 13, and one second barrel body 13 is placed in each second through hole 9. In the present embodiment, since the number of the first through holes 6 and the number of the second through holes 9 are both five, the numbers of the first barrel body 10 and the second barrel body 13 are also both five, corresponding to the numbers of the through holes. In this embodiment, the stoppers 14 can be arranged at intervals on the outer wall of the second barrel 13, and the stoppers 14 can also be annular structures. The inner diameter of the stopper 14 is greater than the diameter of the second through hole 9, so that when the second barrel 13 is placed into the second through hole 9, the stopper 14 is clamped on the second tray 8 to prevent the second barrel from sliding down from the second though hole 9. The insect attracting lamps 12 and different insect attractants in different first barrel bodies 10 attract different insects, and then the high-voltage power grid on the side wall of the first barrel body 10 is used to corona or even electrocute the insects when the insects fly near, and the corona or electrocuted insects directly fall into the corresponding second barrel body 13 below, so that the insects are collected in time.

Further, clear water 17 is placed in the second bucket body 13 to prevent the insects falling into the second bucket body 13 from escaping from the second tub body 13 when the insects are not completely dead.

Further, a heating rod 15 may also be provided on the inner wall of the second bucket body 13, and when the insects falling into the second bucket body 13 are not completely dead, they can be killed by heating with the heating rod 15.

In this embodiment, the attractant may be an insect or mite pheromone or sex pheromone.

The inner wall of the second barrel 13 is coated with a smooth material 16 for the purpose of escaping insects that have fallen into the storage device.

In this embodiment, the insect attracting lamp 12 is an incandescent lamp, a fluorescent lamp, or a light emitting diode.

When in use, the base 1, the motor 2 and the support frame are installed, the trap lamp 12 is installed in the first barrel body 10, different trap agents are put in, the first barrel body 10 is put in the first through hole 6, the second barrel body 13 is put in the second through hole 9, and the number of each barrel body is determined according to actual needs. Meanwhile, clean water can be put into the second barrel 13 or the heating rod 15 is arranged on the inner wall of the second barrel 13, the motor 2 and the heating rod 15 are well connected with the power supply device, the power supply is turned on, and the whole trapping device and storage device rotate 360 degrees under the drive of the motor 2 to attract and trap insects from all directions.

The trap provided by the embodiment of the invention can classify and trap various insects, can also specially trap a certain insect, avoids killing beneficial insects, avoids using chemical pesticides, is environment-friendly, improves the biodiversity, can classify and collect the insects in time, is beneficial to the utilization and research of insect resources, continuously traps the insects day and night, is safe and efficient, Achieve the purpose of green and environment-friendly capture of agricultural insects.

The above embodiment is only a preferred embodiment of the present invention, and the scope of protection of the present invention is not limited thereto. Any simple change or equivalent substitution of the technical scheme that can be obviously obtained by any person familiar with the art within the technical scope disclosed by the present invention belongs to the scope of protection of the invention.

# CLAIMS

1. An attracting and catching device for agricultural insects, which is characterized by comprising a base (1), a motor (2), a support frame, an attracting and catching device and a storage device;

The support frame comprises a main shaft (3), at least three groups of first fixed disks and at least three groups of second fixed disks, wherein the first fixed disks are positioned above the second fixed disks, and the first and second fixed disks are uniformly arranged around the main shaft (3);

The motor (2) is arrange in that base (1), one end of the main shaft (3) passes through the base (1) and is connecte with an output shaft of the motor (2), each group of first fixed disks comprises a first connecte rod (4) and a first disk body (5), The first disc body (5) is uniformly provided with a plurality of first through holes (6) around the center of a circle, one end of the first connecting rod (4) is fixedly connected with the first disc body (5), and the other end of the first connecting rod (4) is fixedly connected with the main shaft (3);

Ach group of the second fixed disks comprises a second connecting rod (7) and a second disk body (8), wherein the second disk body (8) is in an annular structure, a plurality of second through holes (9) are uniformly formed around the center of the circle of the second disk body, and one end of each second connecting rod (7) is fixedly connected with the corresponding second disk. The other end of the second connecting rod (7) is fixedly connected with the main shaft (3), each first through hole (6) is opposite to one second through hole (9), and the diameter of the second through hole (9) is larger than that of the first through hole;

The trapping device comprises a plurality of first barrel bodies (10), the side walls of which are formed by a high-voltage power grid, wherein the top of each first barrel body (10) is provided with a barrel cover (11), the bottom of each barrel cover (11) is connected with a trap lamp (12), and different trap agents are placed in each first barrel body (10). The diameter of the outer wall of the first barrel body (10) is the same as that of the first through hole (6), and one first barrel body (10) is placed in each first through hole (6);

The storage device comprises a plurality of second barrel bodies (13), the outer diameter of the second barrel bodies (13) is the same as the diameter of the second through holes (9), a stop block (14) is arranged on the side wall at the lower end of

each second barrel body (13), and each second through hole (9) is internally provided with one second barrel body (14).

2. The trap for attracting agricultural insects according to claim 1, wherein the second barrel (13) is filled with clean water (17).

3. The trap for agricultural insects according to claim 1, characterized in that the inner wall of the second barrel (13) is provided with a heating rod (15).

4. The trap for agricultural insects according to claim 1, wherein the attractant is an insect or mite pheromone.

5. The trap for agricultural insects according to claim 1, wherein the attractant is a sex pheromone.

6. The trap for agricultural insects according to claim 1, wherein the inner wall of the second barrel (13) is coated with a smooth material (16).

7. The trap for attracting agricultural insects according to claim 1, wherein the insect attracting lamp (12) is an incandescent lamp, a fluorescent lamp or a light-emitting diode.

# Revendications

1. Dispositif d'attraction et de capture d'insectes agricoles, caractérisé en ce qu'il comprend une base (1), un moteur (2), un cadre de support, un dispositif d'attraction et de capture et un dispositif de stockage ;

Le cadre de support comprend un arbre principal (3), au moins trois groupes de premiers disques fixes et au moins trois groupes de seconds disques fixes, dans lequel les premiers disques fixes sont positionnés au-dessus des seconds disques fixes, et les premiers et seconds disques fixes sont disposés uniformément autour de l'arbre principal (3) ;

Le moteur (2) est disposé dans cette base (1), une extrémité de l'arbre principal (3) traverse la base (1) et est connectée à un arbre de sortie du moteur (2), chaque groupe de premiers disques fixes comprend une première tige de connexion (4) et un premier corps de disque (5), Le premier corps de disque (5) est uniformément pourvu d'une pluralité de premiers trous traversants (6) autour du centre d'un cercle, une extrémité de la première tige de connexion (4) est reliée de manière fixe au premier corps de disque (5), et l'autre extrémité de la première tige de connexion (4) est reliée de manière fixe à l'arbre principal (3) ;

Ach groupe de seconds disques fixes comprend une seconde bielle (7) et un second corps de disque (8), dans lequel le second corps de disque (8) est dans une structure annulaire, une pluralité de seconds trous traversants (9) sont uniformément formés autour du centre du cercle du second corps de disque, et une extrémité de chaque seconde bielle (7) est reliée de manière fixe au second disque correspondant. L'autre extrémité de la seconde bielle (7) est reliée de manière fixe à l'arbre principal (3), chaque premier trou traversant (6) est opposé à un second trou traversant (9), et le diamètre du second trou traversant (9) est plus grand que celui du premier trou traversant ;

Le dispositif de piégeage comprend une pluralité de premiers corps cylindriques (10), dont les parois latérales sont formées par une grille électrique à haute tension, dans

lequel le haut de chaque premier corps cylindrique (10) est pourvu d'un couvercle cylindrique (11), le bas de chaque couvercle cylindrique (11) est relié à une lampe de piégeage (12), et différents agents de piégeage sont placés dans chaque premier corps cylindrique (10). Le diamètre de la paroi extérieure du premier corps de fût (10) est le même que celui du premier trou traversant (6), et un premier corps de fût (10) est placé dans chaque premier trou traversant (6) ;

2. Le dispositif de stockage comprend une pluralité de seconds corps cylindriques (13), le diamètre extérieur des seconds corps cylindriques (13) est le même que le diamètre des seconds trous traversants (9), un bloc d'arrêt (14) est disposé sur la paroi latérale à l'extrémité inférieure de chaque second corps cylindrique (13), et chaque second trou traversant (9) est pourvu intérieurement d'un second corps cylindrique (14).

Piège pour attirer les insectes agricoles selon la revendication 1, dans lequel le deuxième tonneau (13) est rempli d'eau propre (17).

3. Piège pour insectes agricoles selon la revendication 1, caractérisé en ce que la paroi intérieure du deuxième tonneau (13) est munie d'une tige chauffante (15).

4. Piège pour insectes agricoles selon la revendication 1, dans lequel l'attractif est une phéromone d'insecte ou d'acarien.

5. Piège pour insectes agricoles selon la revendication 1, dans lequel l'attractif est une phéromone sexuelle.

6. Piège pour insectes agricoles selon la revendication 1, dans lequel la paroi interne du deuxième barillet (13) est revêtue d'un matériau lisse (16).

7. Piège pour attirer les insectes agricoles selon la revendication 1, dans lequel la lampe d'attraction des insectes (12) est une lampe à incandescence, une lampe fluorescente ou une diode électroluminescente.

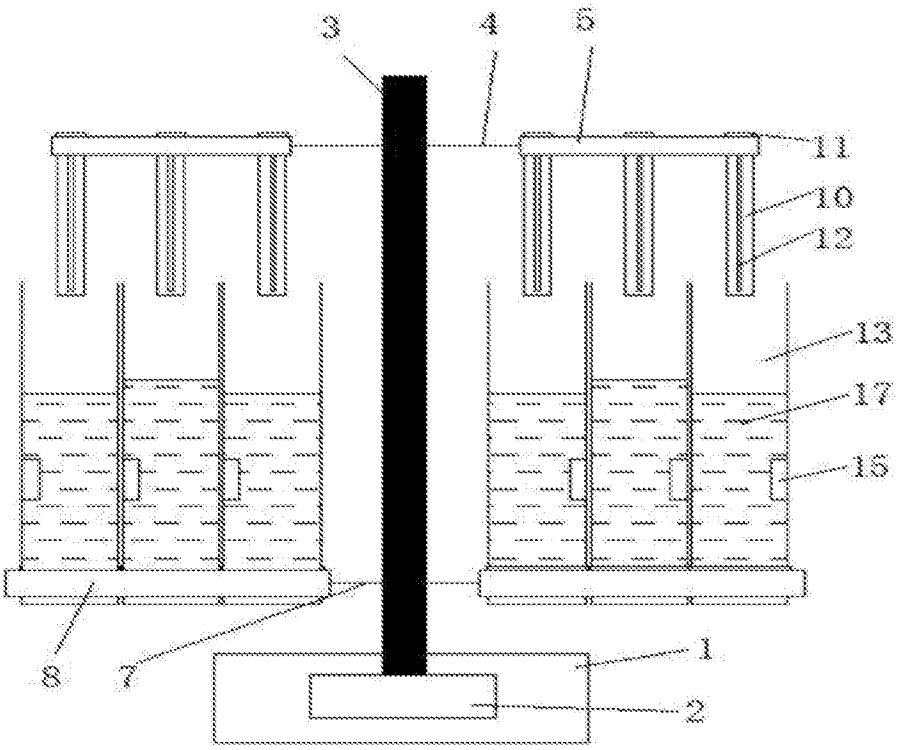



Fig 1

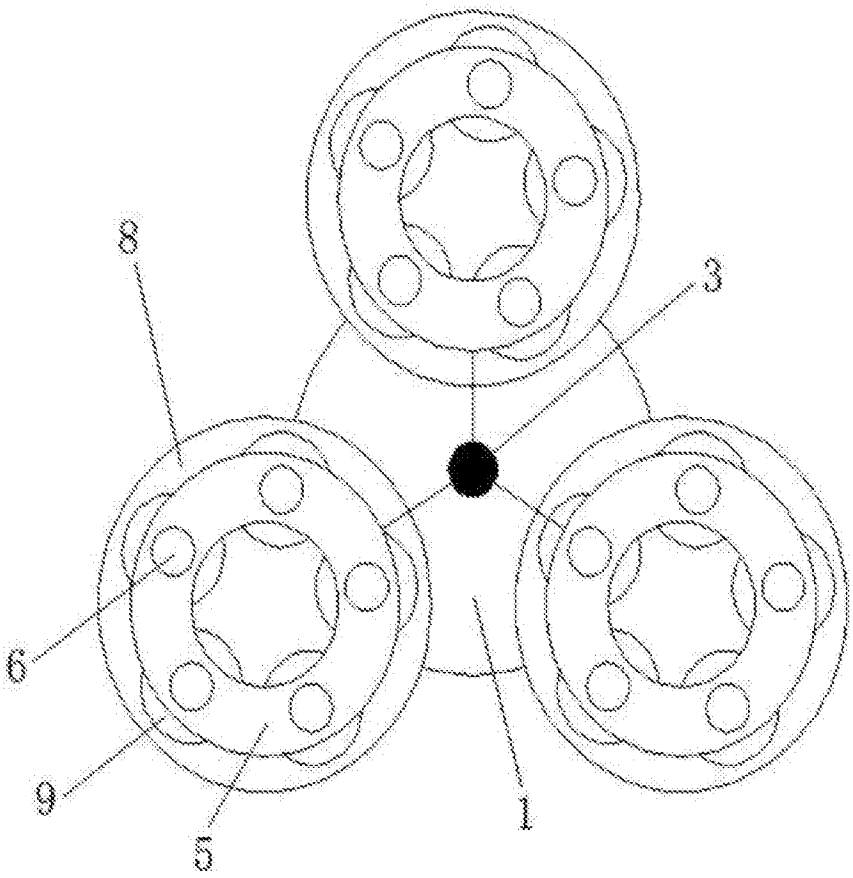



Fig 2

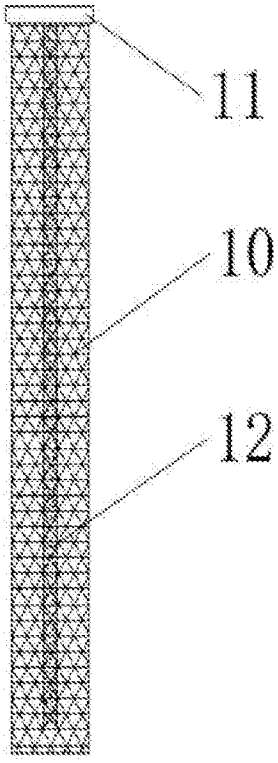


Fig 3

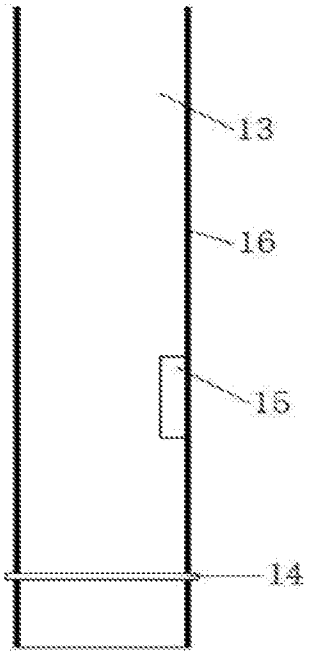



Fig 4