TV-Service – Seeing is believing

BASF in motion

tvservice.basf.com

Digitization in Crop Protection research

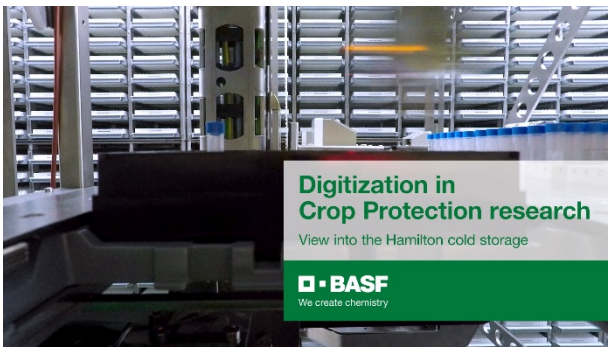
Crop Protection research is time-consuming and expensive. Usually it takes 11 years for a new product to enter the market as well as an average investment of 250 million euros. That is why many routine research steps are carried out by robots.

Robots in search of new active substances

By using robots monotonous work steps can be carried out precisely over a long time. The repetitive accuracy of robots is of great value here, saving time and increasing efficiency. This allows laboratory experts to concentrate on more demanding tasks.

(01) View into the Hamilton cold storage

(05-02-2019 / 3‘06 / ATMO / Footage)



At a temperature of minus 20 degrees Celsius, over a million samples are stored in the cooling storage: chemical substances as well as natural substances. In the laboratory they are tested for their properties and for their suitability as crop protection products.

All samples are stored in small tubes. Each tube is marked with a barcode. With the help of the barcodes, the robot assembles the samples in "stretches". Up to 20 samples per minute can be taken from the extensive storage.

For further information:

BASF SE, Multimedia and Publications, Photo, TV and Film
Silke Buschulte-Ding
Tel. 0049 621 60 48 387
E-Mail: silke.buschulte-ding@basf.com

(02) Sample preparation with the Hamilton robot

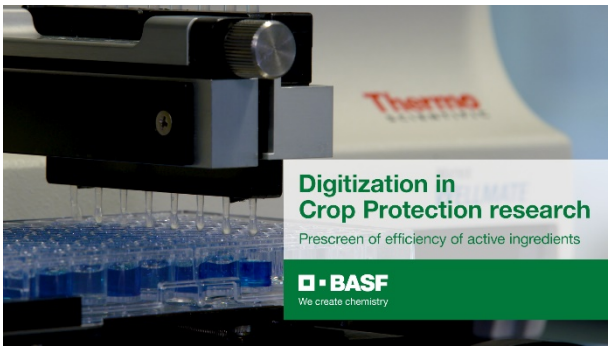
(05-02-2019 / 5‘00 / ATMO / Footage)

In a fully automated process, the assembled "stretches" are further processed with the Hamilton robot. A portion of the samples is taken from the tubes and transferred to a microtiter plate.

The system can provide 20 plates – so-called mother plates – per day. For the subsequent test procedures, each plate contains the initial sample in different concentrations.

(03) Prescreen of efficiency of active ingredients

(05-02-2019 / 5‘37 / ATMO / Footage)



Prescreening is a procedure for the fully automated testing of active ingredients to determine biological effects. In this way, promising substances can be filtered out from a pool of substances.

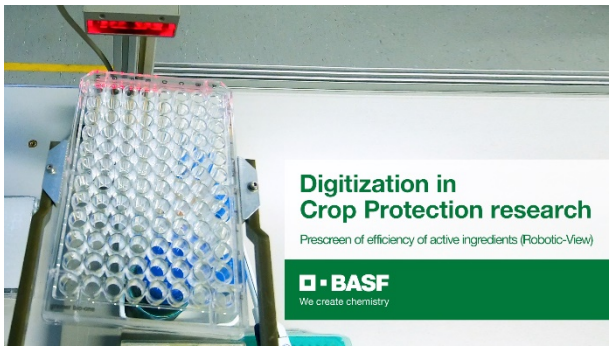
From the mother plates (microtiter plates), copies – so-called daughter plates – for each fungal disease are produced and inoculated with the spores of the fungal pathogens. Up to 100,000 active ingredients can be tested each year.

For further information:

BASF SE, Multimedia and Publications, Foto, TV und Film
Silke Buschulte-Ding
Tel. 0049 621 60 48 387
E-Mail: silke.buschulte-ding@basf.com

(04) Prescreen of efficiency of active ingredients (Robotic-View)

(05-02-2019 / 4‘21 / ATMO / Footage)

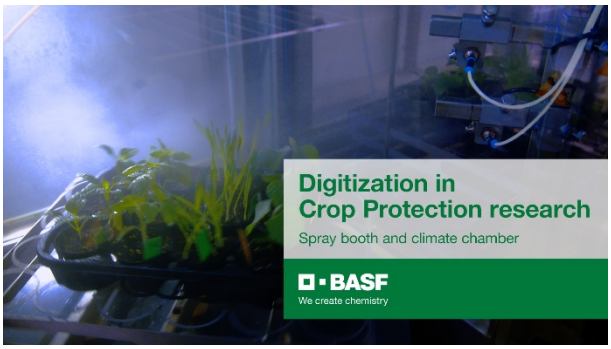


In the following step, copies – so-called daughter plates – are produced from the mother plates (microtiter plates) for each fungal disease, also in a fully automated process, and inoculated with the spores of the fungal pathogens. Up to 100,000 substances can be tested each year.

For optimal growth of the pathogens, the daughter plates are placed in an incubator. A photometer uses the optical density (turbidity) to measure the growth of the spores. The poorer the growth of the fungus, the clearer the samples and the more efficient the active substance.

(05) Spray booth and climate chamber

(05-02-2019 / 3‘54 / ATMO / Footage)



The test plants are taken from the cultivation to the crop spraying plant. They are automatically transported to the spray booth where they are treated with the test substances.

The treated plants are then placed in various greenhouse chambers (climate chambers) where they continue to grow under controlled and uniform conditions. After one to two weeks it becomes apparent whether the test substances applied were able to prevent the growth of the fungal diseases.

For further information:

BASF SE, Multimedia and Publications, Foto, TV und Film
Silke Buschulte-Ding
Tel. 0049 621 60 48 387
E-Mail: silke.buschulte-ding@basf.com