

AMOÉBA announces results confirming the field efficacy of its active substance against grapevine downy mildew.

CHASSIEU (France), July 29, 2019 - AMOÉBA (FR0011051598 - AMEBA), producer of a biological biocide, still in the testing phase, capable of eliminating bacterial risk in water and human wounds, and a bio-control product for plant protection, announces an **efficacy** of its amoeba lysate *Willaertia magna C2c Maky* in the field against grapevine downy mildew.

The intermediate results of the 13 field trials conducted since May 2019 confirm the efficacy of *Willaertia magna magna C2c Maky* amoeba lysate in the field against downy mildew on grapevine (*Plasmopara viticola*).

These tests will be used to prepare the regulatory dossier for the active substance at European level. At this stage of registration, the efficacy of the active substance against at least one of the target species and a crop for which authorisation will be requested must be demonstrated.

Amoéba recalls that the **marketing authorisation for the plant protection product(s) containing the active substance could take place in 2022 in the United States and 2025 in Europe**, provided that they meet the approval criteria.

A rigorous testing protocol.

These tests are carried out in France (10 tests), Germany (1 test), Italy (1 test) and Hungary (1 test), independently of Amoéba and in accordance with European regulations.

Indeed, each test is carried out by an external and independent service provider, GEP approved.

For tests in France in particular, service providers comply with the "Référentiel des exigences des bonnes pratiques d'expérimentation" of the Ministry of Agriculture, which defines "the conditions under which tests are planned, carried out, controlled, registered and operated in order to obtain reliable and comparable data".

The test protocols comply with the official standards of the European and Mediterranean Plant Protection Organisation (EPPO), an intergovernmental organisation for cooperation and harmonisation in the field of plant protection between the countries of the European and Mediterranean region, which establishes regional standards for efficacy testing. In particular, each modality is repeated 4 times in each test to ensure that results are representative.

These tests on grapevine are sometimes carried out with artificial contaminations of downy mildew and misting in order to obtain a significant development of the disease.

These field tests are not tests of practical value, but are intended to assess the intrinsic field performance of the active substance in strict comparison with duly authorised reference products and



applied at their approved dose: Bordeaux mixture and a bio-control product that has very recently obtained a marketing authorisation (MA).

The Active Substance (*Willaertia magna* C2c Maky lysate) is sometimes tested unformulated and also in experimental formulations of the wettable powder type.

Particularly promising interim results

The interim results as at 26 July 2019 are as follows:

- The results are based on about ten well-contaminated sites in France, Italy, Hungary and Germany. This extensive network of tests on different grape varieties and under different conditions makes it possible to assess the behaviour of the Active Substance in a particularly robust way.
- The Active Substance confirms an activity in open field conditions equivalent to that observed on young plants in climatic chambers. The transposition of the results from the climatic chamber to the field is also a very positive element for the other diseases tested in climatic chambers (see Press Release dated July 1st: AMOÉBA announces the possible use of its substance for the treatment of one of the pathogens of field crops, rust).
- The performance on bunches is high for a biocontrol product even in the event of very high infestation: **50% to 80% efficiency**.
- Differences are observed between the different formulations tested, which demonstrate a very good response of the active substance to the formulation and confirm that an efficiency gain can be expected through improved formulation.
- The effectiveness of the Active Substance and its formulations is equivalent to Bordeaux mixture (750 g of copper metal per application) in case of low to moderate pressure of downy mildew, and lower in case of very high pressure of mildew.
- The Active Substance is always more effective than the reference bio-control product in the tests performed, particularly in difficult situations of high contamination.

"These are very positive results and rarely obtained for a first year of field experimentation, a difficult validation stage where many product candidates, particularly natural substances, are found to perform much worse than when observed in the laboratory.

These results will therefore support the registration dossier for the Active Substance.

There is still significant potential for improvement as demonstrated by the differences observed between formulations. These formulation adjustments will be made throughout the authorization process for the active substance.

This active substance could be very useful for the development of 100% bio-control treatment programs, which do not currently exist, or programs adapted to organic viticulture in combination with copper at very low doses, or also programs for conventional viticulture to limit the use of chemical fungicides.

In particular, it is recalled that an excellent complementarity of our active substance with copper at a very low dose has been observed under controlled conditions in planta, an association that we will certainly test in the field in 2020. "says Fabrice PLASSON, President and CEO of Amoéba.



About AMOEBA:

Amoéba's ambition is to become a major player in the treatment of bacterial risk in the fields of water, healthcare and plant protection. Our biological solution is an alternative to chemical products widely used today. Amoéba is currently focusing on the market of industrial cooling towers estimated at €1.7Bn ⁽¹⁾ on a global chemical biocide market for water treatment, evaluated at €21Bn ⁽²⁾ and on the biocontrol market for plant protection estimated globally at €1.6Bn ⁽⁴⁾. In the future, the Company is looking at developing new applications such as chronic wound care, estimated at € 751 million ⁽³⁾ in the USA. Sales of associated products with healthcare, biocides and crop protection are subject to the Company being granted local regulatory market authorizations. The Company is currently in a trial phase for biocidal and plant protection applications and does not market any products.

Created in 2010, based in Chassieu (Lyon, France) with a subsidiary in Canada and in the United States, Amoéba is quoted on the compartment C of Euronext Paris. The Company is a member of the BPI France Excellence network and is eligible for the PEA-PME SME equity savings plan setup. More information on www.amoeba-biocide.com.

(1): Amoéba data combined from sources: DRIRE 2013, Eurostat, ARHIA 2013

(2): Sources combined by Amoéba from water treaters, Freedonia, Eurostat et MarketsandMarkets

(3): BCC Research, "Markets for Advanced Wound Management Technologies," Wellesley, MA, 2017

(4): Biopesticides Worldwide Market 2013, CPL, Wallingford, UK

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