Растителна защита
електронно списание за растителна защита
семена, торове и земеделие
ISSN 2815-522X

Combined products for counteracting abiotic stress

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Date: 06.07.2017 *Issue:* 7/2017

In recent years, the issue of abiotic stress in plants has been gaining increasing relevance. To a large extent, this is due to the growing changes in climate and environmental pollution, which have an adverse impact on the yields of agricultural crops and the quality of plant production.

The most characteristic stress factors for agricultural plants in our country are drought, low and high temperatures, deficiency of mineral elements, etc. Their negative impact is comparable to, and in many cases exceeds, the damage caused by diseases, pests and weeds.

ISSN 2815-522X

To counteract stress in plants, biostimulants, foliar fertilizers, growth regulators, soil improvers, plant protection products, etc. are used. These are preparations with an organic or organo-mineral base that improve the functions of the root system and/or leaf mass through a complex of positive effects on mineral nutrition, photosynthesis, water exchange, etc.

Interest in products with anti-stress properties is constantly increasing. The companies producing these products present them as biostimulants with a broad spectrum of action, but trading companies most often register them as fertilizers or fertilizer products (EC 2003/2003; paragraph 2 of 13.10.2003). Since in the European Union there is still no adopted document regulating the category of biostimulants in agriculture, the composition of these products is extremely diverse. It depends both on the raw material source and on the additional substances introduced during their production.

Studies on the physiological effects of combined Laktofol products in various agricultural crops

In the Department of Plant Physiology and Biochemistry at the Agricultural University – Plovdiv, intensive work has been carried out in recent years on the issue of plant stress and its alleviation through the application of biostimulants and other products with anti-stress properties. In this activity, the Department cooperates with various companies, but most extensively with the Bulgarian company Ekofol AD, which offers a wide range of biomineral foliar fertilizers and biostimulants for agriculture. New formulations and compositions of products are tested under controlled and production conditions. Some results from our joint studies are presented here, in which a positive effect of company products on plants subjected to various stress situations has been established.

Photosynthetic and biometric measurements in production trials with Laktofol products in various agricultural crops

Along with conducting laboratory and vegetation trials in a controlled environment, the team of the Department of Plant Physiology and Biochemistry also carries out measurements in production trials with combined products under real field conditions. In this case, primarily photosynthetic analyses with portable equipment and biometric measurements of the plants are performed. The comparison of results obtained in different types of controlled trials with measurements and yields under real conditions provides a more objective picture of the properties of the tested products.

Combined products with anti-stress properties have been proven to exert a number of positive effects on agricultural crops under adverse conditions, as a result of which they increase their productivity. They are an

ISSN 2815-522X

effective means of optimizing plant growth and development through preventive and corrective treatments. The supply and use of these products in Bulgarian agriculture is constantly increasing. This motivates the conduct of studies on the mechanisms of their action under specific stress conditions in the main agricultural crops and their promotion in practice.

You can read more about counteracting stress in plants and the biostimulants, foliar fertilizers, growth regulators, soil improvers, as well as plant protection products used for this purpose in issue 6/2017 of the journal "Plant Protection".