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National Information Network "Genebank" and Intelligent Agriculture in Wheat Production

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National information network „*Genebank*” and intelligent agriculture in wheat production – two priority projects of national importance.

The BG Plantnet project "*Establishment of a national information network genebank - plant genetic resources*", financed by the Scientific Research Fund, aims to optimize and improve the quality and efficiency of documentation, storage and use of PGR at national level through the development of a National information network „*Genebank – plant genetic resources*” in accordance with the international standards of the European Cooperative Programme for Plant Genetic Resources (ECPGR) and the FAO/Bioversity descriptor (2017). As a result of the implementation of the project, the work of the genebank will be significantly improved by ensuring the functionality and security of the documentation system, free access to the gene pool will be provided, in accordance with the documents signed by our country such as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, 2009) and the Nagoya Protocol, Japan (CBD, 2011), as well as international cooperation will be improved through facilitated data transfer to specialized electronic catalogues. The establishment of an electronic portal for plant genetic

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resources in Bulgaria will lead to a high scientific and public impact through its functions to serve a large number of users at regional, national and international level, and will also establish the National Genebank as a genebank possessing one of the richest collections in Europe.

This project is implemented jointly by the Institute of Plant Genetic Resources "K. Malkov" - Sadovo (Agricultural Academy), Plovdiv University "Paisii Hilendarski" - Plovdiv and the Institute of Information and Communication Technologies - Sofia (Bulgarian Academy of Sciences).

In order to respond to the challenge of the changes occurring in agriculture as a result of the emergence of the Internet of Things and the integration of the physical and virtual world, a team of scientists from the Institute of Plant Genetic Resources, Sadovo and the Department of Computer Systems at Plovdiv University has undertaken the task to create “Application of intelligent agriculture in wheat production“. Intelligent agriculture is an extremely extensive field in which a wide range of tasks can be addressed. Despite the enormous scope, the tasks can be summarized in three major classes: Optimal use and saving of water resources; Protection of and minimal burden on the environment with harmful substances; Prevention and early detection of weeds in common winter wheat.