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Innovative solutions for greenhouse production and biological protection of raspberries and berry crops were presented at demo point “Science” at CRSPBB

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Scientists, students, representatives of the academic community, managers of agro-business organizations, industrial and institutional partner organizations, as well as raspberry and berry producers from different regions of Bulgaria visited the Center of Plant Systems Biology and Biotechnology (CPSBB) in Plovdiv. The event was organized by CPSBB, the Bulgarian Association of Raspberry and Berry Producers (BARBP), and AgroHub.BG.

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The Chairman of BARBP, Bozhidar Petkov, and Dr. Maria Benina, a researcher at CPSBB, presented the experimental greenhouses at the “Science” demo point of AgroHub.BG in CPSBB. Currently, a scientific experiment is being conducted there with different varieties of strawberries and raspberries, which are treated with biostimulants, plant protection products, and fertilizers that are entirely organic-based. The natural biostimulants are an Irish development, based on seaweed extracts from the Atlantic Ocean. The producer BioAtlantis relies on the scientists at CPSBB to thoroughly research their mechanisms of action, with the aim of studying the molecular pathways that lead to increasing the resistance of these and other important agricultural species to abiotic stress, increasing yield by up to 20%, as well as improving the quality, commercial appearance, and shelf life of fruits after harvesting when stored at room temperature.

“The production of raspberries and strawberries in Bulgaria is already happening at a world-class level, integrating innovative solutions aimed at organic cultivation, while also striving for high-quality produce. The challenges faced by all producers are primarily related to climate change and abiotic stress, which is why greenhouse production has its undisputed advantages. CPSBB's greenhouses are high-tech and equipped with the latest generation of technologies for precise irrigation and fertilization, lighting, and climate control. We are grateful for this cooperation with CPSBB, as it is here that the applied experience of the industry finds its scientific justification – a synergy without which it is unthinkable to strive for economic growth,” emphasized Bozhidar Petkov, Chairman of BARBP.

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In addition to biological plant protection, innovative methods for greenhouse cultivation of raspberries and strawberries were also presented. In the CPSBB greenhouses, the container cultivation method for raspberries is applied using soil, in combination with organic fertilizers, coconut and peat shavings, which means that the root system is provided with lasting and stable contact with water and nutrients. The raspberry planting material is of the latest generation Long Cane – one-year fruiting canes in a container, which begin to bloom and set fruit 7-10 days after removal from the refrigerator and start bearing fruit within 45 days, which is an exceptional breakthrough in greenhouse production for achieving a continuous fruiting regime. Precise irrigation, fertilization, and climate control allow for constant monitoring of the entire process with minimal human intervention. Yields are significantly increased compared to those from field production. Records set in this type of greenhouse worldwide are 280-300 kg and more harvested in 8 hours by one person.

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For strawberries, raised beds with an organic soil-fertilizer mix of soil, coconut, and peat were used, and the planting material consists of high-yielding everbearing strawberry varieties prepared using Tray and Super Tray technology. With the help of this technology, the plants have pre-set fruit buds and begin to bloom within a few days after planting and acclimatization, yielding their first fruits within 45 days after planting. Yields from such planting technologies are primarily formed by reducing losses almost to 0%, and the physiological yield can reach up to 1500 g per plant over 2 years of cultivation. In this way, anyone can calculate what yield can be obtained with a 1, 2, or 5-row construction. This method of cultivation leads to extremely dense planting, resulting in excellent yields of high-quality strawberries grown without the use of synthetic pesticides and mineral fertilizers.

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Dr. Maria Benina presented the free services of AgroHub.BG, which all farmers, small and medium-sized enterprises located in Bulgaria, can benefit from, as well as the training sessions that will be conducted at CPSBB.

“We expect the next open days to be visited by more students from the Faculties of Horticulture and Plant Protection, so they can practically apply their acquired knowledge, as CPSBB is an ideal base for career development for PhD students and young scientists,” shares Dr. Maria Benina.