Norway grants

The National Centre for Research and Development

Improving plant quality and economy for a more sustainable and efficient berry production (WP 4)

Acronym: QualityBerry;

Contract number: NOR/POLNOR/QualityBerry/0014/2019-00

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WP4. Adaptation of farming systems to changing climate conditions and weather extremes

Task 4.1. Calibration of moisture/EC probe for various types of soils and substrates used in berry production systems.

The calibration procedure involved determination of a relationship between the probe output and actual water content for several soils (of different texture) and soilless media. Dielectric probes were used. The actual water content of soil or growing medium was determined using gravimetric method. Wireless module was used for measurements of soil/medium temperature, EC and water content.

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Task 4.2. Development of a weighting system for estimating the irrigation needs of berry crops (INHORT):

The irrigation needs of plants grown in containers can be estimated using moisture probes or weight systems. Measurement of irrigation needs based on changes in the container weight is very precise because it directly determines the current water consumption. In the research, in cooperation with a subcontractor, a weighting system was developed, consisting of a measuring platform and system recording the changes in weight of cultivated plants.

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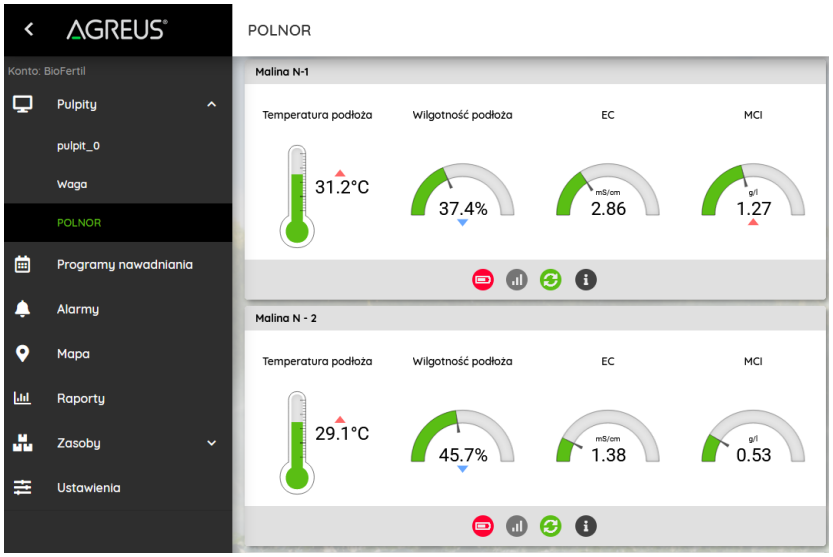
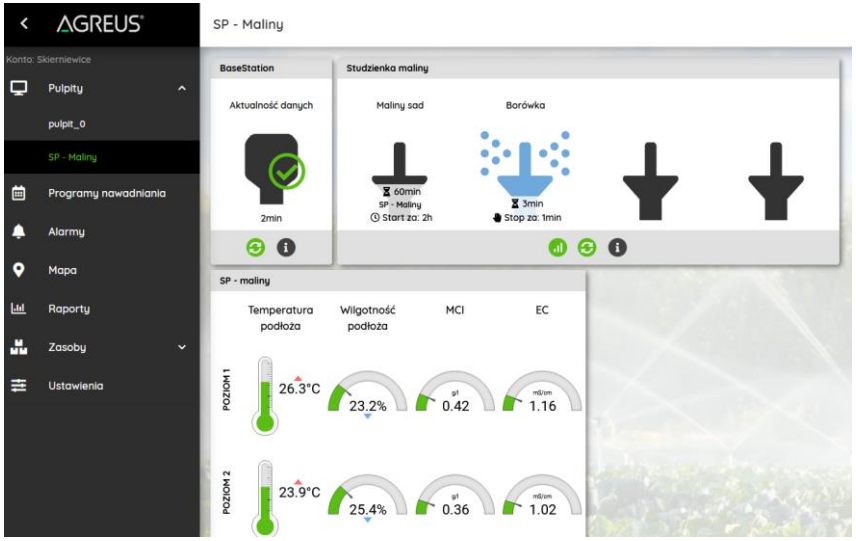
Task 4.3. Suitability of application of telemetric data transmission system in irrigation/fertigation control systems (INHORT):

Both systems based on moisture probes and mass measurement have been integrated with the system of transmission, storage and processing of data as well as control software using wireless telemetry solutions (low-power wide area network). Such distributed system is easy to expand (e.g. additional sensor elements), manage and can be customized to assure a higher user-friendly level and to save time.





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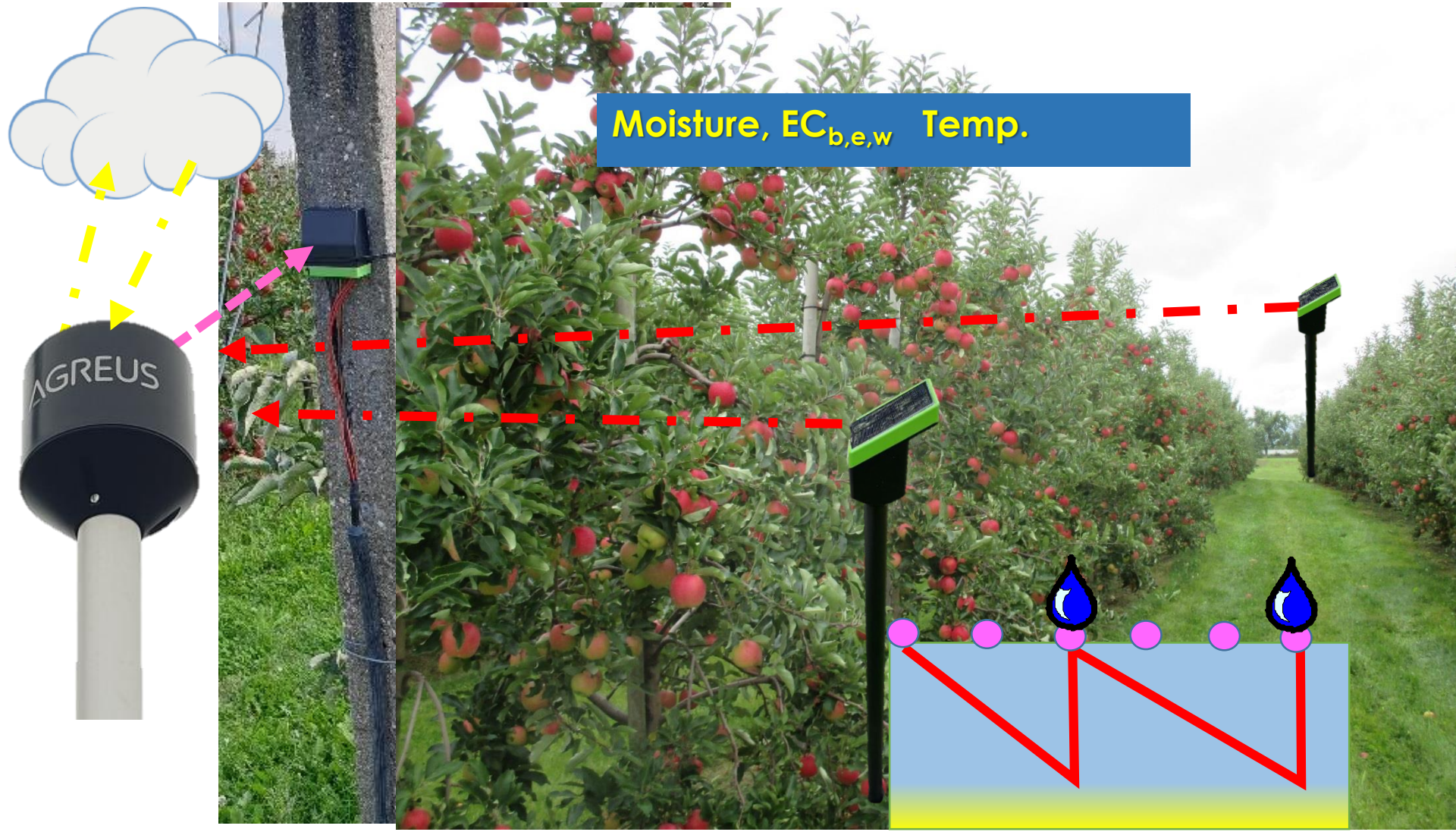
AGREUS
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10
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Wilgotność [%]
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2022-06-07 00:00:00
2022-06-09 00:00:00
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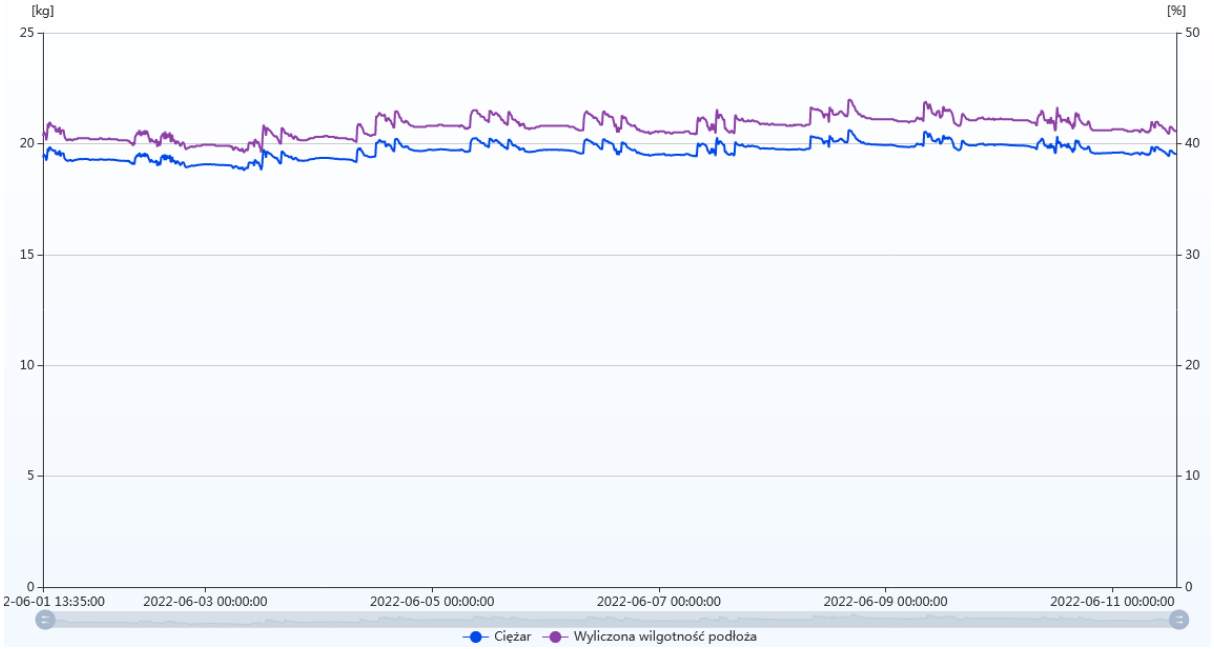
Malina N-1
Malina S 1
Malina S 2
Malina S 3


[kg]
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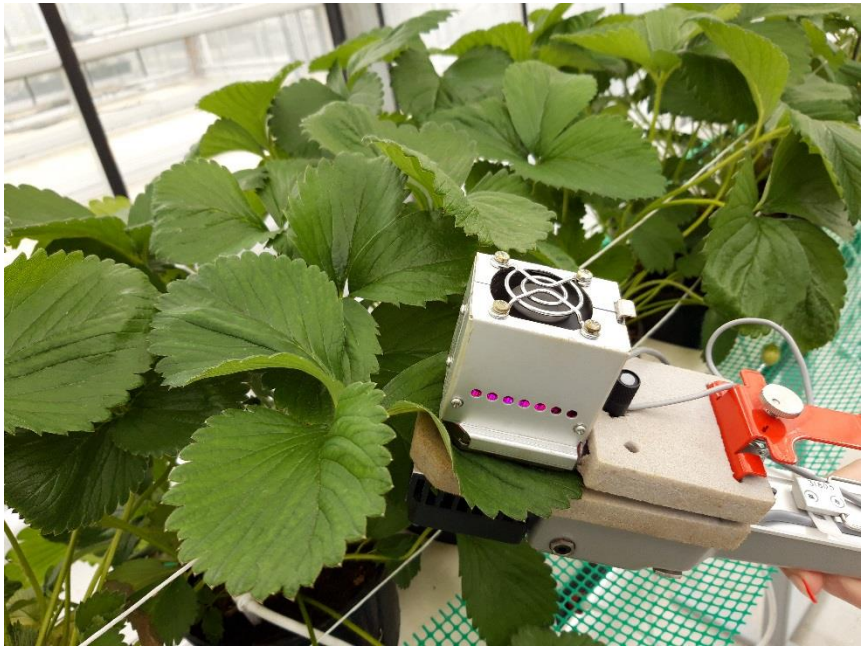
2022-06-11 00:00:00
Ciężar
Wyliczona wilgotność podłoża

Task 4.5. Suitability of strawberry and red raspberry cultivars for growing under conditions of weather extremes (water deficiency and high temperatures) (INHORT):

The response to water deficit of several cultivars of strawberry and red raspberry have been studied. Plants will be grown in conditions of moderate water deficit. Physiological response (photosynthetic apparatus efficiency), plant growth and productivity have been assessed.



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The rate of gas exchange decreased in all cultivars of strawberry and raspberry grown under limited watering conditions. Genotypic differences in drought tolerance were observed. The strongest decrease in photosynthesis was observed for Florence and Markat (strawberry), and Tulameen and Poemat (raspberry). The plant vigour for these cultivars was also reduced. The decrease in plant yielding for raspberry plants reached 55% (for water stressed Polka and Tulameen plants). Differences in the case of strawberry were smaller.

Cultivar	Net photosynthesis (µmol CO_2 m^{-2} s^{-1})		Leaf surface area (cm^2)		Total shoot length (cm)	
	optimal irrigation	water deficiency	optimal irrigation	water deficiency	optimal irrigation	water deficiency
Sokolica	7.87	6.53	5464.39	5015.35	721.40	541.40
Polka	7.93	4.85	5250.66	4594.14	761.00	508.80
Poemat	8.56	5.88	7973.38	7796.74	1042.40	850.20
Tulameen	9.73	6.25	11811.78	3405.97	827.00	240.20

www.inhort.pl

The project is implemented under the Norwegian Financial Mechanism for 2014-2020 „Working together for a green, competitive and inclusive Europe”.

Projekt jest realizowany w ramach Norweskiego Mechanizmu Finansowego na lata 2014-2020 „Wspólnie działamy na rzecz Europy zielonej, konkurencyjnej i sprzyjającej integracji społecznej”.




THANK YOU FOR ATTENTION!