

B. Golub, A. Hudz, A. Dudnyk and A. Bushma, "Production of Biotechnological Objects using Business Intelligence," *2019 9th International Conference on Advanced Computer Information Technologies (ACIT)*, Ceske Budejovice, Czech Republic, 2019, pp. 200-204.

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**Abstract:** Article is devoted to the problems solution of the agricultural crops state analysis during the cultivation process. The use of biosensor devices for measuring plant growth parameters, modern information technologies Data Mining and operational analysis of OLAP data is proposed. Among a wide range of parameters that characterize the plants state, the following are considered: the presence of mycotoxins and the chlorophyll content in the plant against the backdrop of measuring the applied doses of chemical fertilizers and biological additives. The architecture of a system proposed to solve these problems is presented. Its main functions are: control of plant growth parameters measurement with the various biosensors and external sources, transfer of the received data to a mobile device with further accumulation in a central storage, analysis and forecasting of processes related to the crops cultivation. The efficiency of growing crops should be increased.

**keywords:** {agriculture; biosensors; competitive intelligence; crops; data mining; mobile computing; business intelligence; agricultural crops state analysis; biosensor devices; operational analysis; OLAP data; chlorophyll content; chemical fertilizers; biological additives; mobile device; crops cultivation; information technologies; plant growth parameters; biotechnological object production; data mining; mycotoxins presence; Wireless sensor networks; Agriculture; Biosensors; Wireless communication; Fluorescence; Decision support systems; biotechnical object; growth parameters; mycotoxins; biosensor; chronofluorometer; chlorophyll; fertilizer; Android application; server; data warehouse; OLAP; Data Mining; KPI},

## **References**

1. N. F. Starodub I. V. Pilipenko L. N. Pilipenko A. M. Katsev "Express Control of Toxicity and Content of Patulin by Optical Biosensors" *Nanotechnology 2010: Bio Sensors Instruments Medical Environment and Energy* vol. 3 pp. 137-140 2010.
2. A. Barsegian M. Kupriianov I. Kholod M. Tess S. Elizarov "Data analysis technologies: Data Mining" *Text Mining Visual Mining OLAP*. BHV-Peterburg 2009.
3. B. Golub "Analysis of the company's activities" *Science and Life in Israel* vol. 8 2015 [online] Available: <http://nizi.co.il/>.
4. B. Golub A. Gudz "Use of computer technologies in solving the problem of analysis of the content of harmful substances in agricultural crops" *Proc. of the interdisciplinary scientific conference "Multifactor approaches to the formation of a comfortable*

environment pp. 225-230 2017.

5. V. Romanov O. Palagin I. Galelyuka O. Voronenko "Wireless Sensor Network for Precision Agriculture and Ecological Monitoring" Computer means networks and systems vol. 13 pp. 53-62 2014.

6. PostgreSQL: The World's Most Advanced Open Source Relational Database [online] Available: [www.postgresql.org](http://www.postgresql.org).

7. Floratest [online] Available: [www.dasd.com.ua/floratest.php?lang=3](http://www.dasd.com.ua/floratest.php?lang=3).

8. BIOSens [online] Available: <https://sens.bio>.

URL: <http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8780061&isnumber=8779853>