innovative technologies. Among the great number of them, the Internet of Things (IoT) stands out. Despite the fact that IoT is not yet widespread in agriculture, the implementation of this technology solutions is constantly growing. According to the BI Intelligence forecast, by 2020 the number of IoT devices in agriculture will reach 75 million, increasing by 20% annually [1].

Before describing how the IoT can be used in agriculture, it would be necessary to define what IoT exactly means. The Internet of Things is a system of interrelated computing devices, mechanical and digital machines that are provided with unique identifiers and the ability to transfer data over a network without requiring human interaction. The definition of the Internet of things has evolved due to the convergence of multiple technologies, such as real-time analytics, machine learning, sensors, and embedded systems [3]. This technology has found application in a huge number of different areas, among which are power engineering, heavy and light industry, agriculture, health care, the concept of "smart" home and city. Considering IoT as a means of increasing agricultural productivity, several main spheres of its use can be identified:

Firstly, IoT is most often used to create meteorological stations that consist of various intelligent sensors. Being located in the field, they collect data from the environment. The received measurements can be used to compare climatic conditions, to help to select appropriate crops and to take the necessary steps in order to increase crop yields.

Secondly, in addition to determining climatic conditions, meteorological stations can also adjust them to create the most favorable environment for crops. One example is automatic watering systems, the main concept of which is applied in greenhouse automation.

Thirdly, IoT is used to monitor the condition and productivity of cattle breeding. With the help of body-worn sensors, data on temperature, health, activity and nutrition of each individual can be obtained. Thanks to the collected information, it is possible to give a complete herd overview [1].

In conclusion, it should be mentioned that the technology of the Internet of Things has a great perspectives in modern agriculture. Its implementation will allow to get full control over the process of cattle breeding, to increase crop yields, to reduce the costs of mineral fertilizers and inhibitors, to optimize and facilitate the work of staff. Due to the growing world population, and, consequently, the growing need for food, IoT will also be able to help in solving the problem of world famine.

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THE PECULIARITIES OF GROWING A CUCUMBER IN THE SECOND TURNOVER

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Cucumber is one of the most popular crops for growing in the sheltered soil. In comparison with other classical crops they are distinguished by rather fast fruition and harvesting in short terms.

Also all factors that affect plant growth and development in the sheltered soil are completely controlled. For each kind of plant, the optimal microclimate parameters and the algorithm of action in different situations can be chosen. Accordingly, farmers can harvest as large crop as it possible.

The prospect of using greenhouses after the last winter-spring turnover harvest came when growing vegetables indoors has grown into industrial scale. It was then that the idea of a second turnover of cucumbers emerged, especially taking into account that they do not need heating and light.

One of the main conditions for obtaining a positive result in the second turnover is the selection of varieties and hybrids capable of forming a full-fledged crop in the conditions of possible changes of the natural light intensity and daylight reduction. In the second turnover, the plants have to grow and bear fruit in the daytime, which is constantly declining, so not all of them are suitable for this growing period. The operation of greenhouses in the second turnover requires a strict adherence to the plant protection system, because soil can accumulate pathogens and pests that remain after the spring-summer growing [2, p. 25].

Strong-growing hybrids with medium or higher average branch intensity (in the presence of type 2 self-regulation of branching) are most adapted to the growing in autumn. The most appropriate of them are shade-resistant hybrids, which are specially created for growing in this season. The most well-known and recommended are parthenocarpic hybrids of cucumber for summer-autumn turnover of Russian selection (firm “Gavrish”) - Courage F1, Voyage F1, Break F1; Dutch - Angelina F1 (Nunems), which are resistant to fungal diseases, especially powdery mildew [1, p. 38].

Another feature of the second turnover is the absence of strictly defined terms, that is, the time of beginning and end of turnover is dictated not only by biological features of crop, but also by production, technological and commercial factors. For example, in the first turnover a medium fruit bee-pollinated cucumber was grown. At the end of summer and autumn bees become less active, the risk of production of non-standard products and shedding of generative organs is increasing. In early June, the cucumber plants themselves began to weak and become less productive, in addition, the marketability of fruits from the lateral shoots is much lower than from the main stem that until this time are no longer formed. The prolongation of the growing season of such plants is time consuming, and the quality of production and its value are reduced rapidly due to competition with the production of spring greenhouses.

Therefore, for a hybrid grown in the second turnover, it is essential that it will be highly resistant to viral diseases. Also the property to bear fruit during cold periods is needed. When the air temperature drops to 10-12°C at night, the plants must retain the ability to regenerate and form fruits. Harvesting of cucumbers in a non-heating greenhouse is usually carried out before the first frost, in heated sheltered soil it can be grown until December.

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