Consolidation of various sources (financial, informational and consulting) into one source stream as well as the introduction of the "Agro-industrial complex of the Far North" system will result in a synergetic effect of providing government support to agriculture of the Republic of Sakha (Yakutia) that will help eliminate existing problems, improve provision of information to interested people regardless of their territorial location, and also make the process of information exchange more transparent and less corrupt.

It is hard to predict the course of events in future, but there is some evidence of possibilities that the synergetic effect and the ability to manage it properly will create a competitive advantage, that will manifest itself in the development of agriculture in the Republic of Sakha (Yakutia).

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DIFFICULTIES OF USING DIGITAL TECHNOLOGIES IN AGRICULTURE

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***Abstract**: The agro-industrial sector in many countries faces the need to increase food production by raising crop and animal productivity and achieving sustainability. This goal requires the use of information technology (IT) to further develop and improve agricultural production and marketing. However, the potential capacity of IT in agriculture is not fully utilized. If the spread of information technology in agriculture and rural areas is compared with other sectors of the*

economy, it will become clear that the sector's growth is very slow, as the implementation of modern information technology in most sectors of the economy takes place at a higher speed. Information technology has great potential in improving the efficiency and productivity of agriculture. However, stakeholders have to tackle many challenges in implementing and using information technology in agriculture.

Keywords: *information technology (IT), information and communication technology (ICT), digital technologies, agriculture, problems, connection, Internet.*

Agriculture plays an important role in the economic and social development of most countries. To ensure food security and human health, we must succeed in developing the agro-industrial sector. This sector faces several challenges, including higher demand for food caused by the large increase in the population, climate change that limits the productivity of agricultural enterprises, food waste, and others. Solving these issues is very difficult, since the development of the agro-industrial sector must be carried out in a sustainable way, taking into account the environment protection. Digital farming practices such as the Internet of Things, cloud computing, artificial intelligence and big data have become key drivers of sustainable agricultural production.

In addition to the role that ICTs play in improving agriculture, there are some challenges that may hinder the adoption and diffusion of ICTs in the agro-industrial sector. These problems include:

Connectivity - The cost of computers and Internet access fees are still high for the poorest rural population in developing countries. In addition, the Internet access in rural areas is low, as Internet Service Providers (ISPs) offer their services mainly in urban centers [1]. This feature has led to a digital imparity between areas with and without a broadband access. However, the problem of the digital imparity also lies in the unequal financial opportunities of large and small farms and in the high initial costs of new digital technologies [2].

Network bandwidth - Even with telephone and other communications services available, the required bandwidth availability can be a constraint for the efficient use of networks.

Speed of systems development - the speed of innovations diffusion and their poorly predictable and complex effects create complex and difficult management problems. At the same time, it is information technologies that are the most effective means of disseminating innovations and, in addition, their accelerated replacement with more advanced ones, cause continuous scientific and technological progress [3].
Data diversity - the way raw data is collected, processed and stored varies greatly and there is currently no single standard. As a result, agricultural data and public data are difficult to integrate into a single system [2].

Farmers are at risk of becoming mostly data analysts, dependent on information technology and having little knowledge of traditional farming. The loss of "traditional" knowledge can also lead to a loss of influence among farmers and

greater dependence on large companies that provide these technologies and related support services. In this context, there is a need for extension services to develop specific tools for farmers to provide these new solutions [2].

Low rates of development of market infrastructure, which reduces the motivation of producers.

Lack of qualified personnel due to the very low attractiveness of agricultural careers [4].

Lack of awareness of the ICT benefits - many people in rural areas do not have computers and Internet access. This exacerbates their ignorance of the benefits of using ICTs.

Lack of motivation to use computers and the Internet - despite having access to the Internet, users in rural areas must be motivated to use the Internet. To use the Internet, farmers and other specialists working in rural areas must have a sufficient level of competence and skills [1].

Digital agriculture can be understood as a set of technologies for communication, information and analysis that allows farmers to plan, control, and manage operational and strategic activities. It covers all stages of agricultural production from preparatory work to storage, processing, and sale of products.

Farmers are aware of the benefits of digital agriculture and want to digitize their activities, but some challenges seem to be limiting their options. Since the digitalization of farms is very costly, many farmers cannot afford the corresponding modernization projects. Therefore, in addition to the efforts of individual farmers, programs supported by the authorities are needed to accelerate digitalization.

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UNTERSUCHUNG DES MORPHOPHYSIOLOGISCHEN POTENZIALS VON WASSERPFLANZEN IN VITRO

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