

ARTIFICIAL INTELLIGENCE AND COMMUNICATION IN AGRICULTURE

Anka Roxana Pascariu¹, Marius Gordan¹, Iasmina Iosim¹, Tabita Adamov^{1*},
Tiberiu Iancu¹

¹University of Life Sciences "King Mihai I" from Timisoara
Faculty of Management and Rural Tourism

Abstract: Agriculture is an industry that relies on the visual assessment of some parameters to make decisions. At every stage of the food value chain, farmers working in the industry with varying levels of education, experience and age perform thousands of tasks and make decisions, mostly based on visual inspection. Industry experience has shown that this huge focus on communication and artificial intelligence is the way forward, not only for sourcing and marketing agricultural products, but also by adding value in a competitive market.

• Introduction

Artificial intelligence encompasses several rapidly evolving techniques and fields of study, including machine learning and deep learning. John McCarthy coined the term "artificial intelligence" at the 1956 Dartmouth Artificial Intelligence (AI) conference. Today, artificial intelligence refers to "the theory and development of computer systems capable of performing tasks that normally require human intelligence, such as visual perception, speech recognition, decision making, and translation from other languages." For agriculture in particular, artificial intelligence has been designed to make decisions about when and how to apply products, decisions that exceed human capabilities in processing speed, accuracy, analysis or managing multiple farm activities.



Figure 1. Digital innovations

Material and method

For statistical analysis, ANOVA test, chi-square test, T test, Kruskal-Wallis test have been used. Chi-square tests were used in intergroup comparisons of categorical variables, and categorical variables were expressed as numbers, and percentages.

• Results and discussions

Even if artificial intelligence has produced major changes in agriculture, the following aspects must be specified:

1. Artificial intelligence is a supplement, not a replacement for farmers. No form of artificial intelligence can completely replace human experience, but it can increase the ability to make decisions, if the farmer correctly interprets the results obtained.
2. One size does not fit all. Artificial intelligence is an art and a science. Solutions to real-world problems cannot be found in a ready-made kit, but must be carefully analyzed with sufficient amounts of quality data, supplemented by human experience.
3. Contact with farmers is extremely important. Getting out in the field to get feedback from farmers is essential to understanding the scale and nature of the problems to be solved, whether they are technical, cultural or financial.

• Conclusions

Industry experience has shown that this huge focus on artificial intelligence is the way forward, not only for sourcing and marketing agricultural products, but also by adding value in a competitive market.