# Utilization of Artificial Intelligence (AI) in Improving Agriculture Extension Services in Egypt

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**Abstract**

The research aimed at identifying the following: Artificial Intelligence (AI) fields that could contribute in improving agriculture extension services, benefits from using AI, challenges facing the use of AI in supporting and improving agriculture extension services in Egypt from agriculture extension experts' point of view. In addition to providing an integral proposed model to utilize AI in agriculture extension services.

A sample of 51 interviewees had been withdrawn from experts in agriculture extension at Cairo and Mansoura faculties of agriculture and researchers at Agriculture Extension and Rural Development Research Institute (AERDRI) in January 2025. An electronic structured personal interview questionnaire was used for that purpose and disseminated via social media applications i.e. Facebook, WhatsApp and messenger. Frequencies, percentages and relative average were the analytical used tests.

**The research results revealed the following:**

1. AI fields that could be used in improving agriculture extension services were in forecast, prediction of diseases and pests, analysis of agriculture data, and finally prediction of agricultural risks, representing about 100%, 98.7%, 93.5% and 92.8 simultaneously.
2. The important benefits that AI could provide were: providing innovative solutions to minimize agricultural losses and improving production quality (95.8%), applications that depend on AI to provide daily recommendations to farmers in their local dialects (94.8%), and improving the decision making process (94.1%).
3. The most challenging issues facing interviewees in using AI were: personal and farm data regarding privacy (95.4%), technological illiteracy among rural people (93.4%), finally such smart systems require accurate environmental data that could represent a challenge in adapting with sudden and unexpected climate changes (92.8%).

The results also revealed that the most important suggestions to overcome the challenges facing the usage of AI in improving agriculture extension services which represented about 98% were as follows: enhancement of internet in rural areas to enable accessibility to such technologies, establishing specific platforms for such purpose, and reducing usage costs.

**Keywords**: Artificial Intelligence (AI), Improving, Agriculture Extension.