GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 11, Issue 12, December (2023)

TO STUDY THE EFFECTIVE METHODS OF USING MODERN TECHNOLOGIES IN THE PROCESSING OF AGRICULTURAL PRODUCTS

Samadov Muhiddin Akhadovich
Institute of Economics of the Counter Engineer

ABSTRACT

Advances in modern technology have revolutionized the agricultural sector and created unprecedented opportunities to increase the processing of agricultural products. This article explores the effective use of these technologies to simplify processing methods, improve efficiency, improve quality, and promote sustainable practices. Through the integration of automation, artificial intelligence, the Internet of Things (IoT), and data analytics, farmers and food processors can optimize efficiency, traceability, and resource management, ultimately contributing to food safety and economic prosperity.

1. INTRODUCTION

The rapid integration and implementation of modern technologies in agriculture has made significant progress throughout the supply chain. While farming practices have received much attention in this digital age, agro-processing is an equally important area that can benefit from technological innovation. This article explores cutting-edge techniques that use automation, artificial intelligence, IoT, and data analytics to unlock opportunities in agricultural processing.

2. Automation in processing:

Automated systems such as laser sorting, robotic arms, and computerized control systems aid in efficient processing methods. These technologies not only reduce manual labor and processing time, but also enable accurate sorting, grading and packaging, increasing uniformity, consistency and cost-effectiveness.

Automated systems such as laser sorting use advanced scanning and imaging technology to quickly and accurately sort products based on various characteristics such as size, shape, color and quality. This eliminates the need for manual sorting, which can be time-consuming and prone to human error.

Robotic arms are used in processing to handle and manipulate products with precision and speed. They can be programmed to perform repetitive tasks such as picking, placing and packing products, reducing the need for manual labor and increasing productivity.

Computerized control systems are used to monitor and control various aspects of the processing line, such as temperature, pressure, and speed. These systems ensure that processing parameters are maintained within the desired range, resulting in consistent product quality and reducing the risk of error or inefficiency.

The use of automation in processing provides a number of advantages. First, it reduces reliance on manual labor, which can be costly and prone to fatigue and human error. This allows the enterprise to increase labor productivity and save costs.

Second, automation allows for faster processing times. Machines can complete tasks faster than humans, resulting in higher throughput and shorter production cycles. This is especially important in time-sensitive industries such as food processing or manufacturing.

Accuracy and precision are crucial in the processing industry, especially in the sorting, grading and packaging of products. Automated systems such as laser sorting machines ensure consistent and accurate sorting based on pre-defined criteria. This leads to increased uniformity and consistency in end products, improved customer satisfaction and reduced waste.
Automation also offers cost-effectiveness in processing. While the initial investment in automated systems can be significant, the long-term benefits outweigh the costs. Automation reduces labor costs, reduces the risk of errors and product defects, and increases overall efficiency, resulting in higher profitability for the company.

3. Artificial Intelligence (AI) in Processing:

AI technologies have shown great potential in optimizing processing processes. Machine vision systems combined with artificial intelligence algorithms can accurately detect defects, determine the level of maturity and sort agricultural products based on quality parameters. AI-based systems can also help with predictive maintenance, enabling early detection of machine failures, preventing downtime and optimizing overall production efficiency.

4. Internet of Things (IoT) in Recycling:

IoT devices are revolutionizing the manufacturing industry by connecting machines, sensors and other devices to collect real-time data. Through IoT integration, temperature, humidity and other environmental conditions can be continuously monitored, ensuring optimal storage and processing conditions. It increases product quality, reduces waste and improves traceability, adheres to strict regulations and responds quickly to potential problems.

5. Data analysis during processing:

By applying big data analytics, processors can gain valuable insights from large amounts of data collected at various stages of processing. Analyzing this data allows you to optimize production planning, reduce energy consumption, monitor quality parameters and identify areas for improvement. Making accurate decisions based on data-driven analysis leads to increased efficiency and cost optimization.

6. Issues of sustainability and environmental protection:

Integrating modern technologies into agricultural processing can help achieve sustainability goals and streamline operations. Reduced energy consumption, minimal wastage and efficient management of resources driven by automation and IoT systems help reduce environmental footprints. This, in turn, increases the reputation of farmers and processors while maintaining ecological balance.

7. Problems and future directions:

Implementation of advanced technologies in recycling faces certain challenges, including initial investment, training and availability of infrastructure. Addressing these challenges requires a collaborative effort between stakeholders, government support, and knowledge sharing platforms. Future work should focus on developing low-cost technologies to further optimize

processing, improving data security, and expanding the capabilities of artificial intelligence and IoT systems.

SUMMARY

In conclusion, it can be said that the integration of modern technologies in the processing of agricultural products

In summary, the automation of processing through technologies such as laser sorting, robotic arms and computerized control systems has many benefits. It reduces manual labor, shortens processing time, ensures accurate sorting and packaging, improves uniformity, consistency and cost effectiveness. These advances will help improve overall efficiency and productivity in the manufacturing industry.

REFERENCES

1. Abdullaeva, Shoira Kh, et al. "Professional communication competence Psychologist." SPAST Abstracts 2.02 (2023).
2. Urishov, Shakir. "USING INNOVATIVE TECHNOLOGIES IN TEACHING LATIN AND MEDICAL TERMINOLOGY." Academic International Conference on Multi-Disciplinary Studies and Education. Vol. 1. No. 19. 2023.
3. Urishov, Shakir. "EFFECTIVENESS OF EDUCATIONAL METHODS AND TOOLS IN THE LESSON." Innovative research in modern education 1.8 (2023): 93-95.
4. Urishov, Shakir. "DESIGNING PEDAGOGICAL SUBJECTS. A DYNAMIC APPROACH TO TEACHING METHODOLOGY." Академические исследования в современной науке 2.22 (2023): 48-51.
5. Urishov, Shakir Mamatalievich. "Biblical Guidelines for Educational Systems." The Peerian Journal 23 (2023): 15-17.
6. Urishov, Shakir. "IMPROVING THE TECHNOLOGY OF ORGANIZING INDEPENDENT EDUCATION OF STUDENTS THROUGH PEDAGOGICAL FACILITATION." Академические исследования в современной науке 2.22 (2023): 52-54.
7. Urishov, Shakir Mamatalievich. "The Role of Modern Pedagogical Technologies in the Development of the Science of Pedagogy." Journal of Pedagogical Inventions and Practices 25 (2023): 15-17.