

# Artificial Intelligence for Livestock

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**Abstract:** It is impressive what humans has done on the planet in the last hundred years, this had not been achieved in millions of years. As technology grows, the future is very promising, bringing new ways of living, working, etc.

The greatest advance that humanity has suffered has an impact on communication, the easy way to communicate is attributed to the last decade, which is why the entire planet can communicate at anytime from anywhere.

The axis of the world constitutes the technology since through the current systems people can have a better lifestyle, due to all the discoveries that have been made and that have been included in the common way of life of these days.

And this is the result of what has now become artificial intelligence about the consumer, each time the clicks of people are analyzed and studied to then conclude on the products that they could consume, the services they might need, etc.

**Keywords:** Systematization, Innovation, Technification, Production.

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## 1. DEVELOPMENT OF THE TOPIC

### Importance of artificial intelligence today

If technology is understood as "the set of techniques, methods and procedures, which are used for the design and construction of objects through science to meet human needs" or "the application of science especially with industrial or commercial objects, for example animal production "then this concept comes to impact with what is known as Artificial Intelligence, which is the highest concept of technology today can be seen all kinds of development on this issue.

### Innovations of Artificial Intelligence

The growing development of technological innovations or ideas that lead to the successful launch of products created (Pavón & Hidalgo, 1997), has allowed an introduction to the market of totally new products and processes.

In recent years, information and communication technologies have contributed to the generation of innumerable technological innovations; allowing important changes in productive sectors such as industry, agriculture, among others. Today, information technologies have a positive impact on the competitiveness of production chains, since they reduce production costs, add value to products and enhance a quality exportable supply. Access to updated and systematized information improves management systems, influences company decision-making and impacts costs and risk management (Infoagro, 2009). This comes to form what is known as artificial intelligence of consumerism, which is nothing more than smartphones to which any type of application can be added.

### Camera controlled by an automaton

This camera, which operates under different lighting conditions, connects directly to the farmer's computer, tablet or smartphone from where it manages the relevant notices.

The system that distributes the information is based on probes located at the bottom of the feeder, providing valuable information about the animals and their conditions regarding solid and liquid food.

### **Lighting technology light emitting diode for farms**

It is more common than we think to find in industrial farms energy-saving lamps and fluorescence tubes having as inconvenience the duration of operation compared to other solutions. As a form considered an energy saving, the presence of lamps has been increasing, but what advantages does the use of light emitting diode lamps have? , its duration in hours is the fundamental advantage for its operation; It also does not generate hazardous waste. For maximum efficiency, just know the light efficiency and power ratio (the higher the better).

### **Drones for grazing monitoring**

One of the innovations present in the livestock sector is related to the use of drones to monitor livestock production to grazing. These drones use infrared sensors and multispectral cameras that allow interesting images to be captured from the air, facilitating in this way the monitoring of livestock production to grazing on issues of animal population, animal body condition, biomass among other factors.

### **Use of mobile applications (apps) for proper livestock management**

Mobile applications for livestock help keep farmers informed and store the history of animals in a barn in a practical and systematic way. The mobile applications that are currently available worldwide have emerged both from initiatives of private companies and promoted by professional associations and agricultural organizations for use and dissemination among their partners.

### **Milking machine**

The basic principle of a milking machine is to extract the milk from the breast by vacuum. In this way a rapid extraction is achieved, as complete as possible and hygienic.

Milking machines have a very simple operation. They consist of a closed circuit in which a pump creates the vacuum action (38-42 kilogram-force low line, 50 kilogram-force high line) and, this vacuum simultaneously arrives at a push button that rhythmically opens and closes a tea cup, this It is the element that exerts the massage action that favors the expulsion of milk, and collects the milk through a specific circuit and transfers it to a container for storage.

The liner is the only part of the machine that is in contact with the animal. Its mission is to imitate the animal's mouth as much as possible, providing a nipple massage and sucking the milk.

Its shape is that of a beaker or cup (metallic or rigid plastic), covered inside by a flexible rubber sheath (silicone). The space between the two elements is connected by a tube to the vacuum circuit regulated by the button. The space where the nipple is located is connected to a milk collector, which moves it to a cooling tank.

Implementation of technology in production (cattle) Juan Manuel Monterroso, another member of Copleche, said that the technification of milk production in this department is incipient and before one of the associates install equipment, a technician of this entity verifies the process, because all the dairies have different characteristics, what must be taken into account to achieve good production. The equipment that is acquired and installed must be consistent with the location of the farm and the production that is to be achieved. Livestock is still semi-technical, as there are farmers who milk by hand, but they have cooling tanks; and others use milking machines, but they store milk in an artisanal way. Farmers complain about the lack of government support for this sector. Marco Pineda Colón, cattle breeder, said that production and quality has been achieved with the support of Copleche, which facilitates loans for the acquisition of dairy cattle, concentrates and necessary equipment. (Oswaldo Cardona, June 2014).

Professionals in the new technology sector predict that only those who know how to adapt will survive. This is what Jorge Gonzalo, director of the Agrifood AT company specializing in the transfer of technologies to the agri-food sector, says: "You need to know what is happening in a ship or another of your farm and know the cost of unit product. For that you need data. If you don't have that data, you will never be able to evaluate your profitability and you will never be competitive."

But that adaptation to the world of information technologies and digitalization can be anything but simple. As Rafael Olvera reminds us, the livestock sector has some peculiarities that must be considered: "In general, in agriculture, the application has specific connotations that must be adapted. Perhaps, in the field of livestock, for what it means and for the

idiosyncrasy of the farmers, who are in rural areas where maybe there is still no broadband, they have a somewhat special treatment”.

José Luis Miguel emphasizes that the lack of adequate infrastructure is a determining factor when analyzing the degree of implementation of all these technologies in the agricultural sector that, let's not forget, is eminently rural: “You install sensors in the farm. Sensors that are Internet on things. That they must be sending information constantly. If you don't have broadband, what do you do? We need basic infrastructure to make this work. Castilla y León is one of the sites with more problems. It is a clear limiting factor.”

### Observations and comments

Livestock with the implementation of technology has very promising potential. There are many challenges in the current environment that it faces, mainly one of the challenges is to increase confidence in small breeders and producers about the new methods and systematization of the stable and field, doing this through tests that demonstrate the benefits that can be obtained in relation to your current production system.

One of the problems to face is the use of technological devices and systems in rural areas; since there can be a wide range of limitations, such as connectivity, bandwidth or electricity deficiencies, the geographical location that can play against, as well as economic situations, therefore it is necessary to ensure that the best options are applied to fit the conditions, thus obtaining good utility and efficiency.

In our country it is necessary to work under conditions according to the levels for the application of the new technologies, so that this topic is relevant as a massive tool in the environment, it is necessary to adapt to the changes, take advantage of the new advances, for its complementation it is to take centers educational preparation in the technological area, technicians willing to solve problems in the different places where such systems have been implemented.

## 2. CONCLUSIONS

1. The realization of Livestock Week and Expoleche that brings together the Central American countries urge the use of technologies through exhibitions that promote the great advantages that are obtained by systematizing a control of the environment for breeding and production.
2. The advice or training is essential to control the activities carried out in relation to the livestock that are available, evaluate the conditions and validate at the beginning of implementation that the systems work correctly.
3. Technify the livestock area is not necessarily synonymous with unemployment, but to maintain better security, administration, regulating a more detailed control in order to facilitate work in seasons or climatic changes.
4. Employment of agricultural services, using information and communication technologies effectively, considering the characteristics of customers and respecting legal regulations.
5. Supervise compliance with quality protocols, during the development of production processes in the industrialization of products and by-products of livestock exploitation, acting objectively so that the client is benefited.

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