Data Mining in Mexican Agriculture

Negrete JC[1]*

Agricultural Machinery Engineer graduated in Autonomous Agrarian Antonio Narro University, Mexico

*Corresponding author: Jaime Cuauhtemoc Negrete, Autonomous Agrarian Antonio Narro University, Mexico, Email: temoneg@gmail.com

Abstract

Food production currently in Mexico is insufficient to feed the growing population, being dependent on the importation of food so there is food insecurity, which leads to the exploration of all kinds of modern techniques to increase productivity of agriculture and livestock in the country how the application of automation and mechatronics, and other modern technologies such as neural networks, Artificial vision , and internet of things , being so data mining can also help increase the productivity of food production. At present, the pressure in food production is increasing in the world due to the constant increase of the population, this is no stranger to our country, so any technology that helps the above must be considered, the use of some authors in this regard and it becomes clear that in Mexico the application of innovative technologies does not find an echo as in the rest of the world, which must end and the opposite must be done.

Keywords: Data Mining; Mechatronics; Automation; Precision Agriculture; Mexico

Introduction

Food production currently in Mexico is insufficient to feed the growing population, being dependent on the importation of food so there is food insecurity Negrete (2019) [1], which leads to the exploration of all kinds of modern techniques to increase productivity of agriculture and livestock in the country, proposes the application of automation and mechatronics, Negrete (2015) [2], and other modern technologies such as neural networks Negrete (2018a) [3], Artificial vision Negrete (2018b) [4], and internet of things Negrete (2018c) [5], being so data mining can also help increase the productivity of food production.

Data Mining Uses in Agriculture and Livestock: Let's define Data Mining. It is the process of exploration through descriptive and predictive techniques that allow you to discover hidden knowledge (patterns) from a data set (data sets) or databases (KDD: Knowledge Discovery in Databases). DM applies methods and techniques of statistics, artificial intelligence, and machine learning [6].

Flores [7] Used data mining techniques to obtain a classification of the genetic value for the Manchega Sheep Selection Scheme, which began fifteen years ago with the objective of improving production figures.

Segrera [8] carried out a land evaluation work that covered all the sugarcane areas of the country, which was developed in a participatory manner in which producers and researchers intervened, as a premise to establish strategies for agricultural development development planning, the application of data mining techniques could contribute to improving the results of the land evaluation process. Data from the variables used in the issuance of physical fitness categories of Sugarcane farmland in Cuba to apply data mining techniques that, to through classifiers, allow to predict which factors of the soil, climate and agricultural, present in the plots studied, could be more decisive in this process.

Zamora [9] Conducted an investigation whose objective

was to find a model for the prognosis of production and planted area of agricultural crops, such as potatoes in the La region Araucanía and Los Ríos with Los Lagos (the latter together), and wheat in the region of Biobío and La Araucanía. The analysis focused on historical data and the study was based on the application of data mining techniques, oriented in the identification of patterns. One of them is the econometric models, which generate patterns from the received data, in order to minimize the associated errors. One of the applications of these models is the time series forecast

Priyanka [10] Describes the development of software for an intelligent agriculture system, makes use of various parameters for operation, including data mining methods, satellite weather information, Internet-based search data.

B. Kavitha [11] Proposes data mining techniques to help solve problems in agriculture. It is used to presage pollution in the atmosphere by cataloging the combination of soil with GPS and simulating daily perceptions and other climatic variables including agricultural parameters, environmental attributes and geographical attributes. The data is analyzed to obtain a useful pattern that helps analyze agricultural productivity.

Data Mining Uses in Mexican Agriculture

Ureta [12] Implemented a data mining approach that allowed us to evaluate spatial relationships of environmental (altitude, climate, slope and soil) and social factors(education and ethnic groups) with the spatial distribution of Mexican races, as well as the areas that can potentially harbor the highest number of races (PRA).

Conclusion

At present, the pressure in food production is increasing in the world due to the constant increase of the population, this is no stranger to our country, so any technology that helps the above must be considered, the The use of some authors in this regard and it becomes clear that in Mexico the application of innovative technologies does not find an echo as in the rest of the world, which must end and the opposite must be done.

References

1. Negrete JC (2019) The role of agricultural mechanization in food security. Journal of Agricultural Research Advances 1(3): 12-15.

2. Negrete JC (2015) Mechatronics in Mexican Agriculture Current Status and Perspectives. SSRG International Journal of Agriculture & Environmental Science (SSRGIJAES) 2(3): 9-14.

3. Negrete JC (2018a) Artificial Neural Networks in Mexican Agriculture, A Overview. International Journal of Research in Agriculture and Forestry 5(7): 1-9.

4. Negrete JC (2018b) Artificial Visión in Mexican Agriculture, a new technology for increase food security. Management and Economics Journal 2(8): 381-398.

5. Negrete JC (2018c) Internet of things in Mexican agriculture; a technology to increase agricultural productivity and reduce rural poverty. Research and Analysis Journal 1(2): 40-52.

6. Ramírez MI, Mazon OB (Coordinadores) (2017) Análisis de Datos Agropecuarios. Gestión de proyectos editoriales universitarios. Colección REDES) Ediciones UTMACH, pp: 302.

7. Flores M Julia, Gámez José A, Mateo Juan L, Puerta José M (2006) Selección genética para la mejora de la raza ovina manchega mediante técnicas de Minería de Datos. Inteligencia Artificial. Revista Iberoamericana de Inteligencia Artificial 10(29): 69-77.

8. Segrera S, Moreno MN, Miguel LA (2005) Aplicación de la minería de datos en la evaluación de la aptitud física de las tierras para el cultivo de la caña de azúcar.Actas del III Taller Nacional de Minería de Datos y Aprendizaje, TAMIDA2005, 349-358.

9. Zamora VTF (2018) Aplicación de Tecnicas de Mineria de Datos para Pronósticos del Sector Agrícola. Informe final Pontificia Universidad Católica de Valparaíso. Facultad de Ingeniería Escuela de Ingeniería Informática.

10. Priyanka P. Chandak, Agrawal AJ (2017) Smart Farming System Using Data Mining International Journal of Innovative Science and Research Technology 2(6): 376-380.

11. Kavitha B, Nagarani M, Dhanalaxmi B (2017) Smart Agriculture System Using Data Mining Techniques. International Journal of Advanced Scientific Technologies in Engineering and Management Sciences 3(12): 1-2.

12. Ureta C, González C, Gonzálezc EJ, *Álvarez* ER, Enrique Martínez EM (2013) Environmental and social factors account for Mexican maize richness and distribution: A data mining approach. Agriculture, Ecosystems and Environment 179: 25-34.