DATA MINING TECHNOLOGIES FOR IDENTIFYING RELATIONSHIPS AMONG THE SELECTED ENVIRONMENTAL VARIABLES

Dananjali K.T.[1*], Ekanayake J.B.[2] and Karunaratne A.S.[2]
[1]Faculty of Graduate Studies, Sabaragamuwa University of Sri Lanka
[2]Department of Physical Sciences and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Sri Lanka
[3]Department of Export Agriculture, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Sri Lanka
*dananjali@ccs.sab.ac.lk

The agriculture sector contributes 6.9% to the national GDP of Sri Lanka. Even though there are great difficulties when selecting crop types for farming, both prices and environmental conditions fluctuate during a short period of time. Here, Badulla and Monaragala districts were considered as locations. Maize, potato, tomato and green gram were the selected crops. These are the independent variables: rainfall, minimum/maximum temperature and relative humidity, wholesale, retail and imported prices of the above crops, farm-gate prices of other competitor's productions. Data pre-processed and transformed into weekly data. Then M5 Pruned model tree was used to predict the farm-gate price of each crop. The results revealed that the imported potato wholesale price, Welimada rainfall, Badulla district minimum temperature and maximum relational humidity factors have a negative impact on the Welimada Potato farm-gate price (WPFP). Nuwara Eliya Potato farm-gate price and Badulla maximum temperature have a moderate impact on the WPFP and others impact positively. Tomato prices of Hambanthota, Keppetipola and Dambulla have a positive impact on tomato price in Badulla. Meanwhile, others impact negatively. A linear model was created from the maize data set. The model revealed that Thambuththegama farm-gate price positively affects and Monragala district rainfall negatively affects to the farm-gate price of the maize. The M5P model tree shows that Nikaveratiya, Anuradhapura, Thambuththegama and Tissamaharamaya farm-gate price of green gram and retail price of green gram and Monaragala maximum temperature positively affect the green gram price of Monragala district and others impact negatively. This study explores the positive and the negative factors on the farm gate price of the selected crop, and hence, the farmers can avoid the negative factors while optimizing the positive factors and continue farming as a profitable industry..