Influence of meteorological factors in the yield of olive and the statistical model of forecasting

Aferdita Laska MERKOCI[1], Edlira KUKALI[2], Azen BARDHI[1], Mirela DVORANI[1], Majlinda KASMI[2]

[1]Polytechnic University of Tirana, Institute Geosciences, Energy, Water and Environment, Department of Climate and Environment, Dom Bosko Street NO 60 1000 Tirana, Albania, (e-mail: aferditamerkoci@yahoo.it)
[2]Agriculture University of Tirana, Department of Horticulture, Koder Kamez PO BOX 1000 Tirana, Albania

Abstract

The aim of this paper is focused on forecasting of olive production in two zones with high production, Berati and Vlora in Albania country. The effect of climatic conditions is seen as deviations of yield of a specific year from trend line. The model is based on the multiple regressions. The data used as independent variables are: daily rainfall; of average temperatures for different threshold; effective temperatures for different thresholds. The periods of the year with more significant impact on yield production are determinate using correlation analysis. The significant correlation coefficients are determined using the Student Test for a level of significance $\alpha = 0, 05$. Olive yield has: a negative correlation with atmospheric precipitation during the winter/spring period for both regions and a negative correlation with average temperature for this region. The multiple regressions are significant for both regions. The value of Fisher test is about 7.5 for the regions under study. The validation of these equations is carried out with the olive yield of 2002, 2003 and 2004. The error of forecasting is 3%-4%. The forecasting verification for the period under study, indicate that the accuracy of the ensemble model can meet the needs of operational service.These results show that this forecasting model can be used successfully in Albania.

Key words: Forecasting, yield product, meteorological factor, equations of regression, olive