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REGRESSION ANALYSIS OF DIFFERENT SOURCES OF DORMANCY DURATION VALUE FOR THE POTATO VARIETIES

A dormancy value or duration defines the period potato tubers can be stored before initiating sprouting. Characterization of dormancy value provides useful information to implement strategies for short or long-term storage of potato varieties and can be instrumental to schedule treatment of potato tubers with sprouting inhibitors. The dormancy values of the varieties are provided by breeders. Those values can be retrieved from online databases.

The objective of this study is to compare the dormancy values gathered from online databases with the dormancy values collected in Switzerland through field and storage experiments. This comparison is performed using linear regression analysis.

So, 2 sources of information were used: 1) dormancy of cultivars provided by breeders (breeders dormancy) 2) dormancy of cultivars obtained from field experiments (field dormancy). The field experiments were managed in Switzerland during 25 years in four different locations and for 721 varieties of potatoes. Field data were registered during the growing season such as weather data (e.g. temperature, rainfall etc.), soil data and crop management data. One month after harvest, the potatoes were stored at 8°C in wooden crates containing 7 kg of potato tubers. The dormancy was defined as the time between the harvest and the emergence of the first sprouts.

The results are the following: the dormancy of cultivars provides by online databases are incomplete and heterogeneous. This can be explained by the heterogeneity of the methods used by breeders to determine the dormancy values (e.g. the use of different control varieties and the use of different dormancy scales). The comparison of breeders and field dormancy through linear regression leads to the proposal of novel methodologies to assess and calculate the dormancy values of the potato varieties. Our results also stress the importance of climatic and field parameters to estimate the dormancy length of a given potato stock.