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The influence of weather conditions on potato late blight during the growing season in Barsa land, Brasov, Romania

HERMEZIU MANUELA, HERMEZIU R., STEFAN MARIA, IANOSI MARIA, CHELMEA CARMEN

National Institute of Research and Development for Potato and Sugar Beet Brasov

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Hermeziu Manuela, Hermeziu R., Stefan Maria, Ianosi Maria, Chelmea Carmen

INTRODUCTION

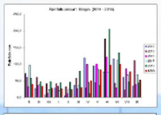
Potato late blight development is favored by high humidity and moderate temperature. Because the fungus is very sensitive to the climatic conditions the attack intensity is different a year to other.
To control the diseases multiple fungicide applications are necessary.
In average 10-12 treatments during the season were used to control potato late blight.
Based on the data of main weather conditions and late blight infection between 2016-2018 to NIRDPSB Brasov, the authors analyzed the influence of temperature and humidity on potato late blight in the summer months.

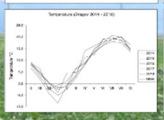
MATERIAL AND METHODS

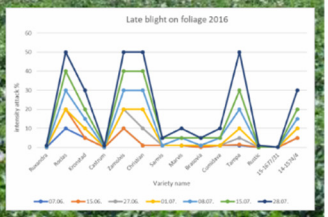
In 2016-2018, different fungicides were used in controlling late blight attack on16 Romanian potato varieties. Trials were laid out according a randomized block design with three replicates.
Planting was made in 25 March 2016, 30 March 2017 and in 11 April 2018.
In all cases, cultivation and maintenace was in line with current good agricultural practice.
Late blight infection was assessed according to the 0.01-100% scale, where 0.01 means the absence of any visible lesion and 100 means a 100% necrotic tissue.

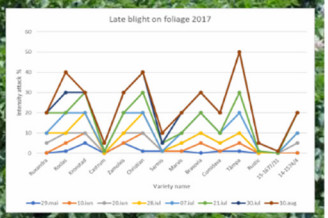
RESULTS

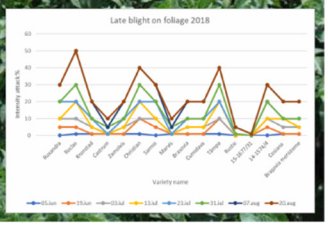
In 2016 the first late blight symptoms were recorded on 31 May, the earliest appearance in the last 23 years.
The whole season had favourable conditions for epidemic development of late blight, followed in August by drought, which have strongly reduced the foliage to the early varieties.
In 2017 the first late blight symptoms were founded in 7 June.
The attack intensity was high due to the favourable weather conditions (high number of rainy days).
In 2018 the first late blight symptoms were recorded on 3 July.
With lot rainfalls in June and July, blight developed in outbreaks and a defoliation process (depending on variety) started in mid-August.
Based on three years observation data were identified some varieties which are less sensitive (Castrum, Marvis) or relative resistant (Rustic, Cezarina). A medium resistance manifested other 9 varieties (Kronstad, Zamolxis, Braşovia, Cumidava, Cosiana, Braşovia from tissue culture, Ruxandra, Sarmis and Ervant) and the last 3 varieties (Roclas, Christian and Tâmpa) lost their resistance.
Observations regarding varieties resistance to late blight attack are in view the infection pressure at the plot level starting from the time of epidemic everywhere. In this time the resistance to infection progression can be modified even on less sensitive varieties due to the interrelationship between adjacent planted varieties.
To reduce the number of spray applications, it may actually be better to choose early maturing varieties than late maturing ones.
Early or medium early varieties bulk up before the foliage is affected by blight.











CONCLUSIONS

Potato late blight is a factor which decrease the yield.
Not all the farmers have resources for effective control, with top products, which are generally more expensive.
Therefore, the cultivation of some varieties with good resistance to disease represents a solution to improve the crop, but also to have a healthier potato from the point of view of pesticide residues.
The number of sprays to control potato late blight could be reduced when a weather-based disease model was used.

Acknowledgement

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