

POTATO LATE BLIGHT AND EARLY BLIGHT EPIDEMICS IN CURRENT CLIMATIC CONDITIONS FROM SOUTH EAST OF TRANSYLVANIA AND FUNGICIDE APPLICATION PROGRAMS

HERMEZIU Manuela*, <https://orcid.org/0000-0002-2610-7039>

HRISTEA (Adam) Lorena

*National Institute of Research and Development for Potato and Sugar Beet Braşov,
Braşov, Romania,*

**Corresponding e-mail: manuela.hermeziu@potato.ro*

The present study aimed to compare epidemics and damage of both late blight and early blight of potato under current climatic specific conditions and fungicide application programs in south -east of Transylvania, Romania. An experiment was carried out between 2023-2024 in the experimental field from NIRDPSB Brasov, Romania to compare potato late blight (LB) (*Phytophthora infestans*) and early blight (EB) (*Alternaria* sp.) epidemics under current environmental conditions and fungicide application programs.

Lay out of the plots of the field trial: randomized complete block design with 4 replicates. Planting was made in 28th April 2023 and in 10 April 2024. Cultivation and maintenance was in line with current good agricultural practice. Potato cultivar: Darilena (Romanian potato variety), moderately susceptible to *Phytophthora*. First symptom observation: daily check for all plots after emergence till first symptom observed in one of the plots. Trials relied on natural infection, late blight appeared in 2023, July 3rd and in 2024, June 4th and early blight in 2023, July 21st and in 2024, July 15th. The fungicides program included the following: V1: control (untreated) V2: Zorvec Endavia (oxathiapropalin+benthiavalicarb 0.4 l/ha), V3: Zetanil (cymoxanil + zoxamide 0.45 kg/ha), V4: Carial Star (mandipropamid + difenoconazol 0.6 l/ha) and V5: Banjo (fluazinam 0.4 l/ha).

The severity of LB and EB was assessed before each treatment, and the area under disease progress curve (AUDPC) was calculated for both diseases. The yield was quantified by weighing the tubers of all the plants from 2 central rows on each plot and yield data were converted into kg ha⁻¹.

In 2023 growing season was warm but not so dry. The temperatures between May and August were higher on average by 1.8°C, compared to MAA and the rain-

falls in June and August exceeded the MAA as volume. In 2024, the summer months (June-August) recorded higher temperatures than the MAA. Also, the volume of precipitation was much lower in all three months.

ANOVA results indicated that the final late blight incidence was different ($P < 0.05$) among treatments. The maximum final percentage of disease incidence of 52.10%, were recorded by V1 (control), followed by 24.20% (V5), 22,14% (V4), 19,5%(V2) and 17.10% (V3), respectively.

Also for early blight ANOVA results indicated a maximum final percentage of disease incidence of 20.60%, were recorded by V1 (control), followed by 13.40% (V5), 12,5% (V2), 12.10% (V3), 9,12% (V4), respectively.

The severity of late blight was greater than that of early blight in both years, without affecting the yields obtained. Efficiency of diseases control was dependent on the spray timing and the number of fungicide applications. Use of forecasting systems as tools for managing potato foliar diseases is necessary for the rational and responsible application of fungicides.

Keywords: climatic conditions, early blight (EB), fungicides, late blight (LB), potato varieties

Acknowledgments. This research was supported by the project/subprogram (Project PN No. 40N/2023 - PN 23-19-02-02), funded by (Ministry of Education and Research Romania).