



**NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT
FOR POTATO AND SUGAR BEET (N.I.R.D.P.S.B.) BRAŞOV**



**The behaviour of some potato varieties to early blight (*Alternaria* sp.)
stroke in the central area of Romania (Tara Barsei county)**

Manuela HERMEZIU, Radu HERMEZIU

Euroblight Workshop, Monte Verita, Ascona, Switzerland, 9th -12th May 2022

NIRDPSB Brasov is located at longitude 45°40'11.58"N and latitude 25°32'14.54"E with a total area of approximately 800 ha. It's territory is part of the pre-mountain plain of Barsa Country, located in the southeast corner of Transylvania, as a depression surrounded by mountains, crossed from one end to the other by the Bârsa river.

The altitude is between 550 and 722 m and the geographical position and the configuration of the relief influence the climate character.

The dominant soils are the cambic cernoziomoids (44.9% of the surface) and the relic cambic-glacial cernoziomoids (36.1% of the surface). The main characteristics of the cambic chernozem soil, on the depth of the arable horizon are: pH - 6.7; clay - 27%; humus - 3.2%; N - 3.15%; P₂O₅ (ppm) - 32.1%; K₂O (ppm) - 105.1%.

Bârsa Country is in the transition zone between the Mediterranean and continental climate, being influenced by both types of climates. The weather is determined by the predominance of one or another of these influences



Air temperature (°C)

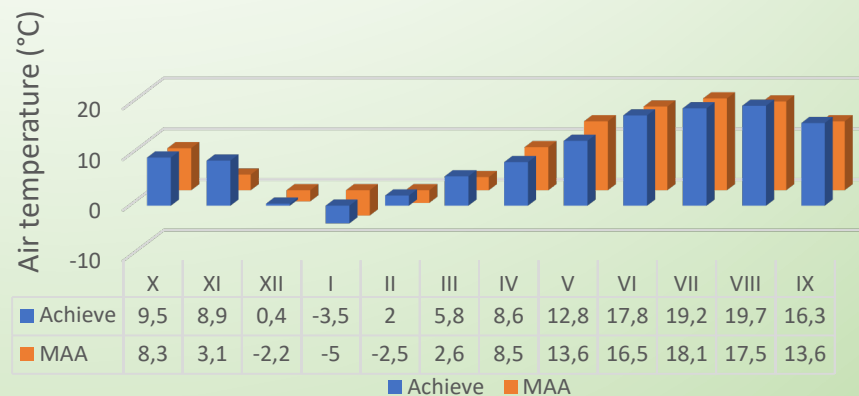
Average Temperature Brasov (October 2018 - September 2019)



Achieve MAA

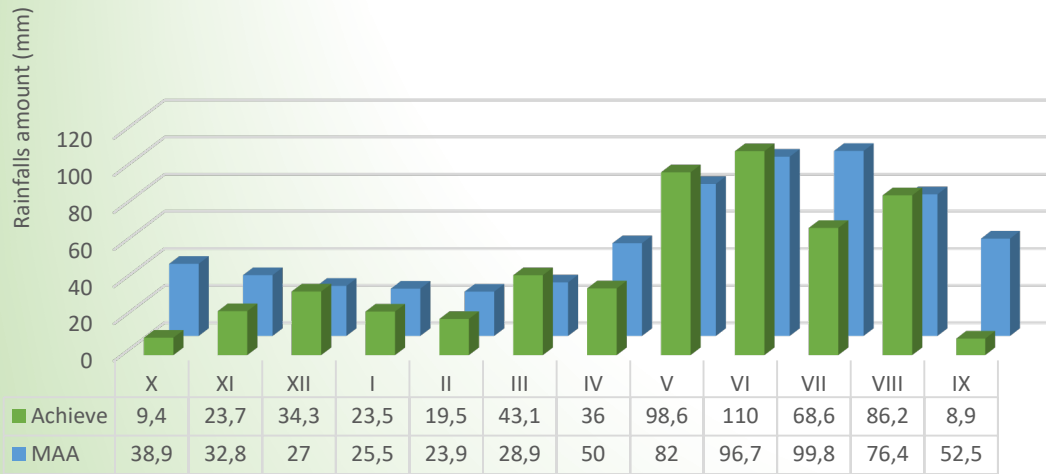


Average Temperature Brasov (October 2019 - September 2020)

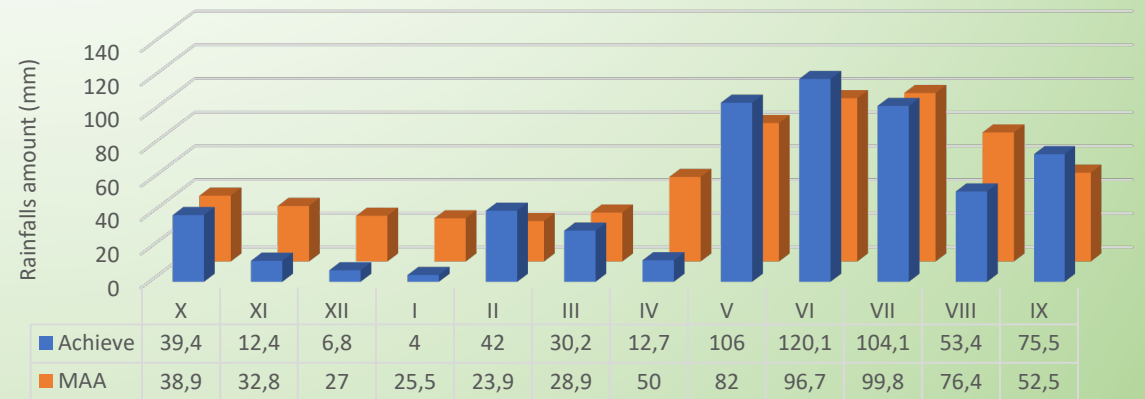


Achieve MAA

Rainfalls amount Braşov (October 2018 - September 2019)



Rainfalls amount Braşov (October 2019 - September 2020)





Material and method

- :· the experiences were carried out using randomized complete block design with 4 replicates, 4 rows with 10 plants each;
- :· control measures against weeds, late blight (*Phytophthora infestans*) and Colorado beetle were done according to the common practices and in concordance with the local climatic conditions;
- :· the determinations regarding the level of attack were performed on 2 central rows, to the lower, middle and upper levels of the tested plants;
- :· during the vegetation period, 5 observations were made;
- :· the data were statistically processed by the method of analysis of the variant, by levels and total plant, by the Duncan test.

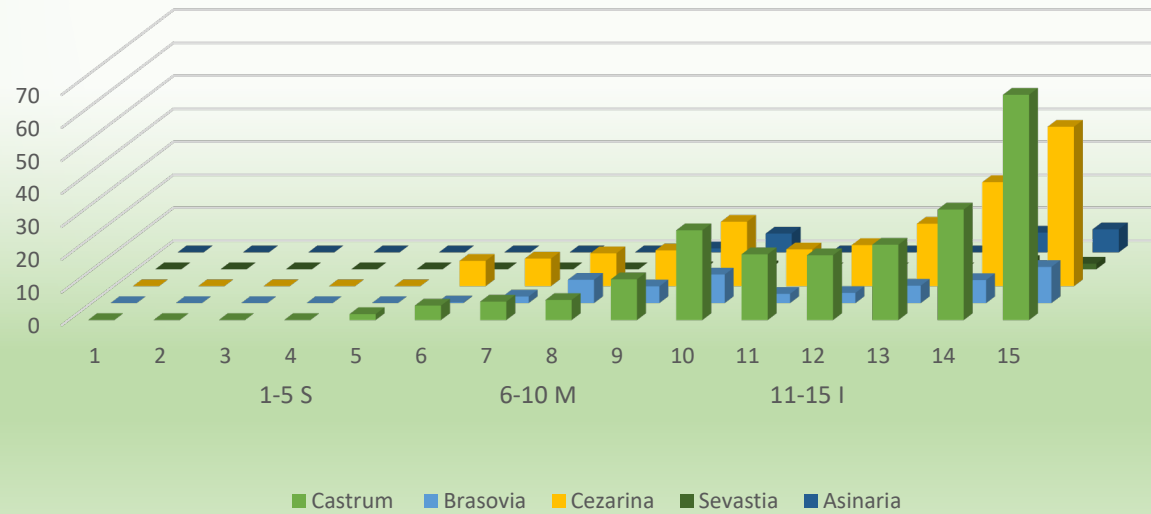
Maintenance of the experimental field (March – September 2019)

Work	Date	Observations/product/dose
Field preparation	28.03	
Fertilization	18.03	NPK 16:16:16 - 1000 kg/ha
Planting	4.04	Distance between rows: 75 cm. Distance between plants on row: 30 cm
Ridging	17.04	
Herbicide		Preemergence herbicide - Sencor 0.9 l/ha
Treatment (control) late blight	28.05	I st treatment - Polyram DF 1.8 kg/ha
Treatment (control) late blight	7.06	II nd treatment - Infinito 1.4 l/ha
Herbicide	12.06	Postemergence herbicide - Fusilade 1,5 l/ha
Treatment (control) late blight	13.06	III rd treatment - Ridomil 2.5 kg/ha
Treatment Colorado beetle	18.06	Calypso 480 SC - 80 ml/ha
Treatment (control) late blight	24.06	IV th treatment - Equation Pro 0.4 kg/ha
Treatment (control) late blight	3.07	V th treatment - Consento 450 SC 2.0 l/ha
Treatment (control) late blight	10.07	VI th treatment - Infinito 1.4 l/ha
Treatment (control) late blight	22.07	VII th treatment - Bravo 500 SC 2.0 l/ha
Treatment (control) late blight	30.07	VIII th treatment - Carial Star 0.6 l/ha
Treatment (control) late blight	7.08	IX th treatment - Shirlan 500 SC 0.4 l/ha
Treatment (control) late blight	14.08	X th treatment - Shirlan 500 SC 0.4 l/ha
Haulm destroyed	30.08	MDV
Harvest	16.09	

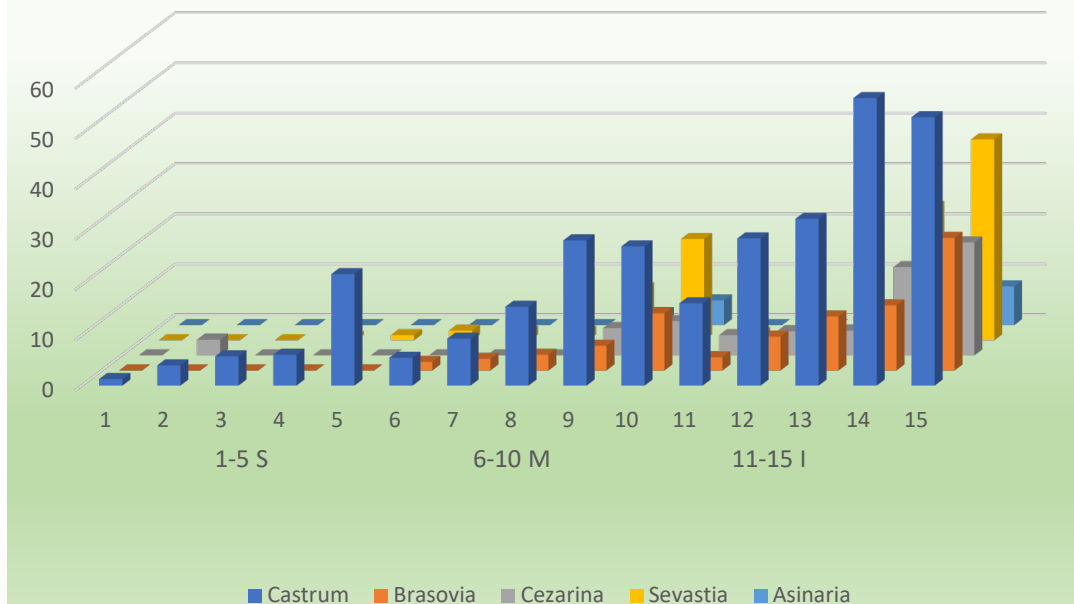
Maintenance of the experimental field (March – September 2020)

Work	Date	Observations/product/dose
Field preparation	18.03	
Fertilization	18.03	NPK 16:16:16 - 1000 kg/ha
Planting	6.04	Distance between rows: 75 cm. Distance between plants on row: 30 cm
Ridging	16.04	
Herbicide	22.04	Preemergence herbicide - Surdone 1.2 kg/ha
Herbicide	8.05	Postemergence herbicide - Titus 50 g/ha
Treatment (control) late blight	23.05	I st treatment - Ridomil Gold Mz 2.5 kg/ha
Treatment (control) late blight	4.06	II nd treatment – Consento 450 SC 2.0 l/ha
Treatment (control) late blight	16.06	III rd treatment - Lieto 0.45 kg/ha
Treatment Colorado beetle	26.06	Calypso 480 SC - 80 ml/ha
Treatment (control) late blight	26.06	IV th treatment - Ridomil Gold Mz 2.5 kg/ha
Treatment (control) late blight	9.07	V th treatment - Carial Star 0.6 l/ha
Treatment (control) late blight	15.07	VI th treatment - Cymco Super 2.5 kg/ha
Treatment (control) late blight	24.07	VII th treatment - Infinito 1.4 l/ha
Treatment (control) late blight	4.08	VIII th treatment - Lieto 0.45 kg/ha
Treatment (control) late blight	10.08	IX th treatment - Shirlan 500 SC 0.4 l/ha
Haulm destroyed	26.08	-
Harvest	10.09	-

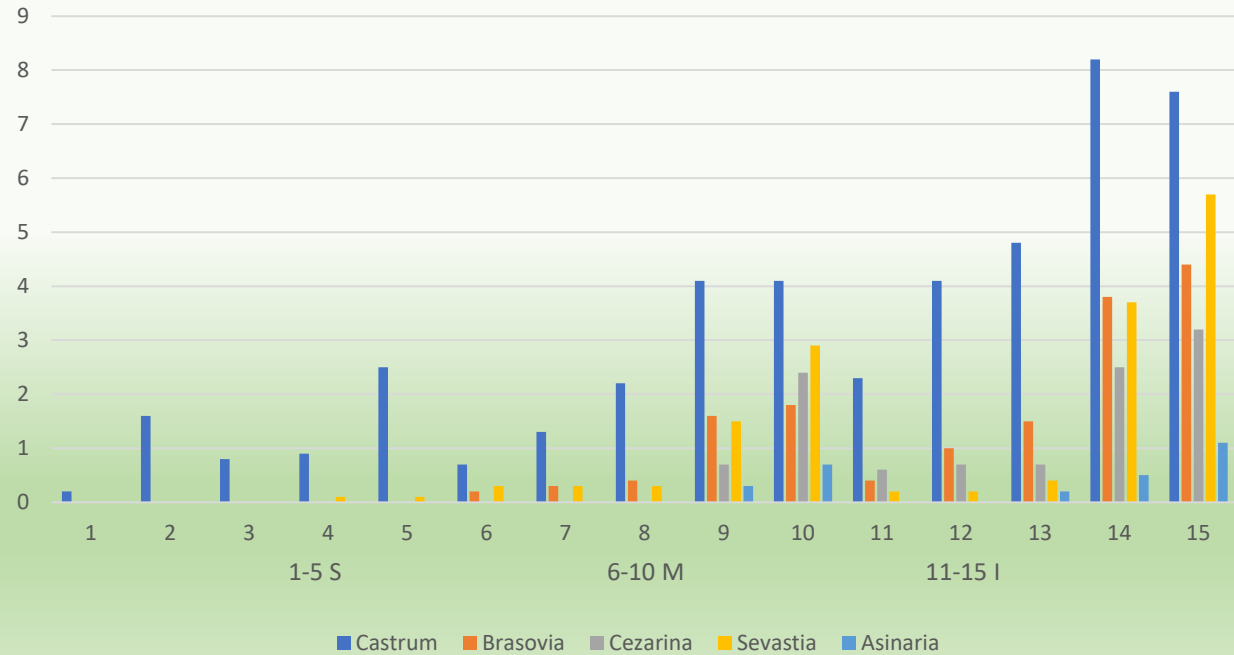
No. lesions/leaf Brasov 2019



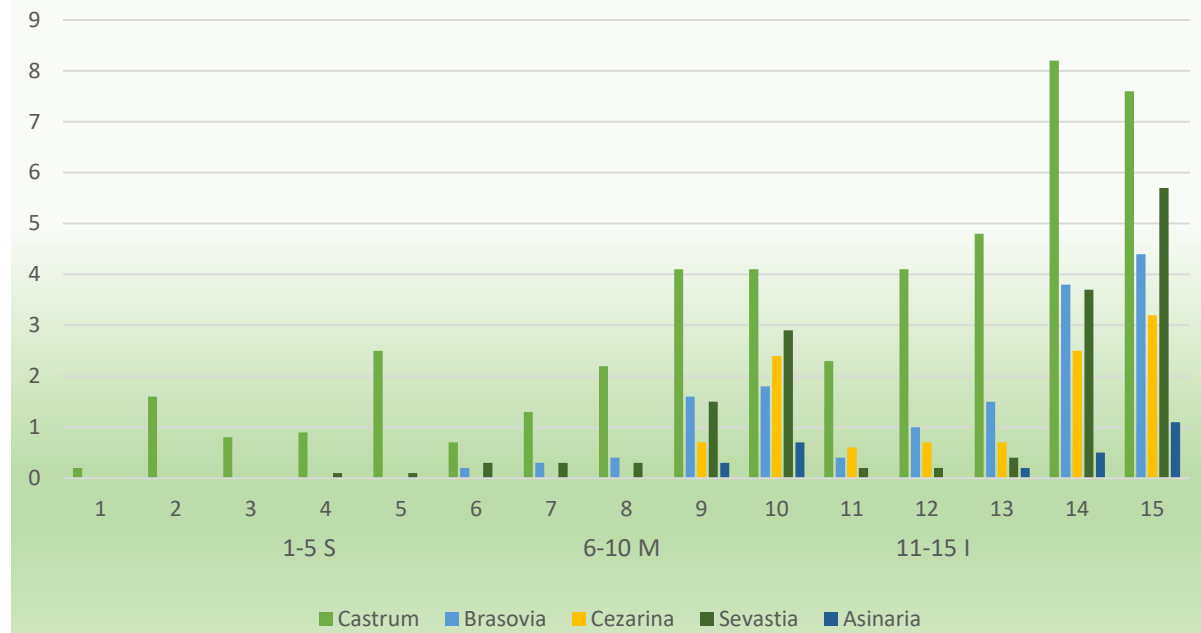
No. lesions/leaf Brasov 2020



No. lesions/ leaflet 2019



No. lesions/ leaflet 2020



Influence of variety on total tuber yield / hectare (t) 2019

Variety	Total yield (t)	Dif. (t)	Sign.
Brasovia (control)	38.25	-	-
Asinaria	28.41	-9.84	ns
Castrum	27.17	-11.08	o
Cezarina	43.30	5,05	ns
Sevastia	16.83	-21.42	o o

DL 5% = 10,82 t/ha;

DL 1% = 14,50 t/ha;

DL 0,1% = 19,14 t/ha.

Influence of variety on total tuber yield / hectare (t) 2020

Variety	Total yield (t)	Dif. (t)	Sign.
Brasovia (control)	30,09	-	-
Asinaria	29,10	-0,99	ns
Castrum	19,57	-10,53	o
Cezarina	24,04	-6,05	ns
Sevastia	25,90	-4,19	ns

DL 5%=8,42 t/ha;

DL 1%=11,28 t/ha;

DL 0,1%=14,89 t/ha.

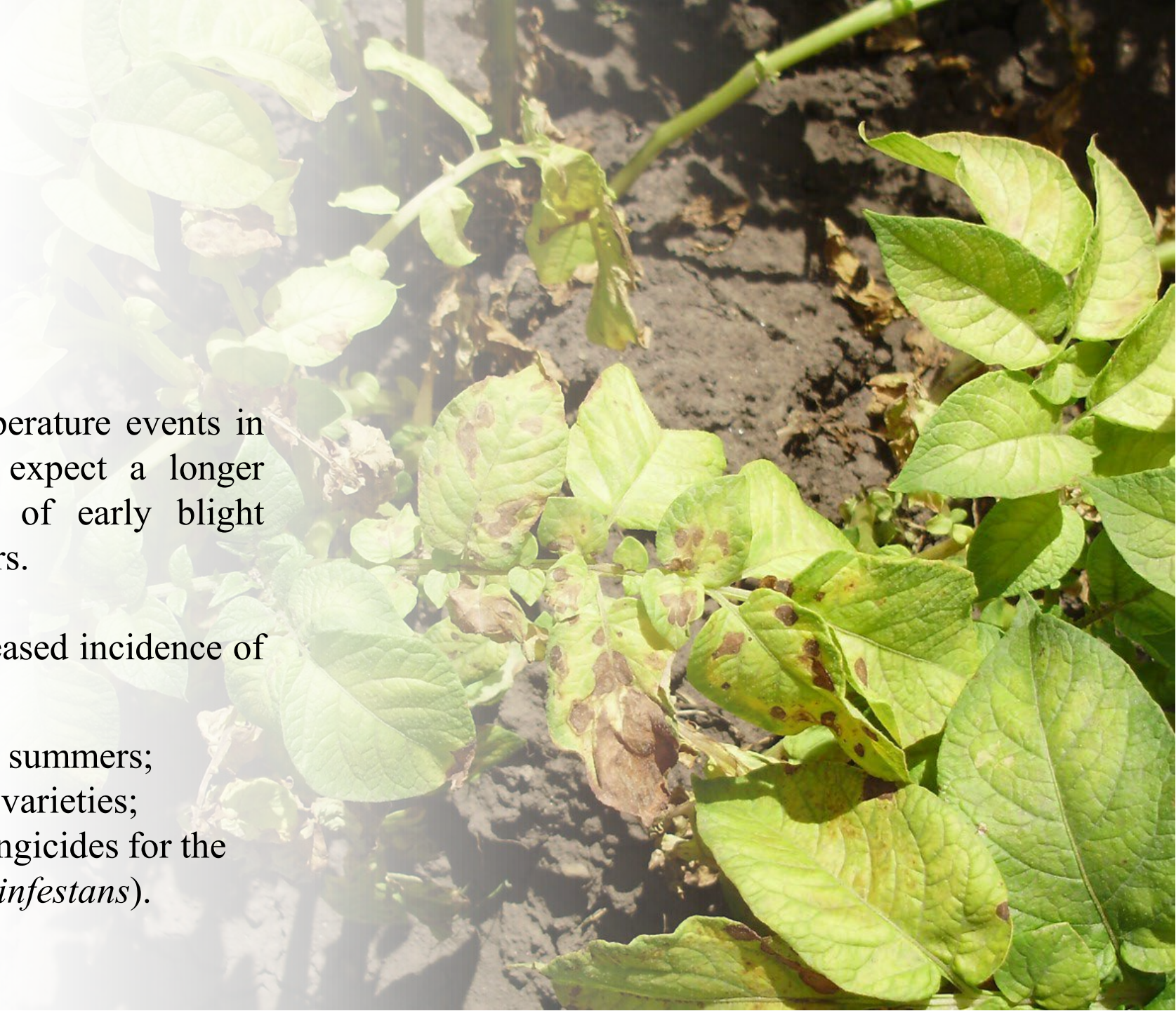


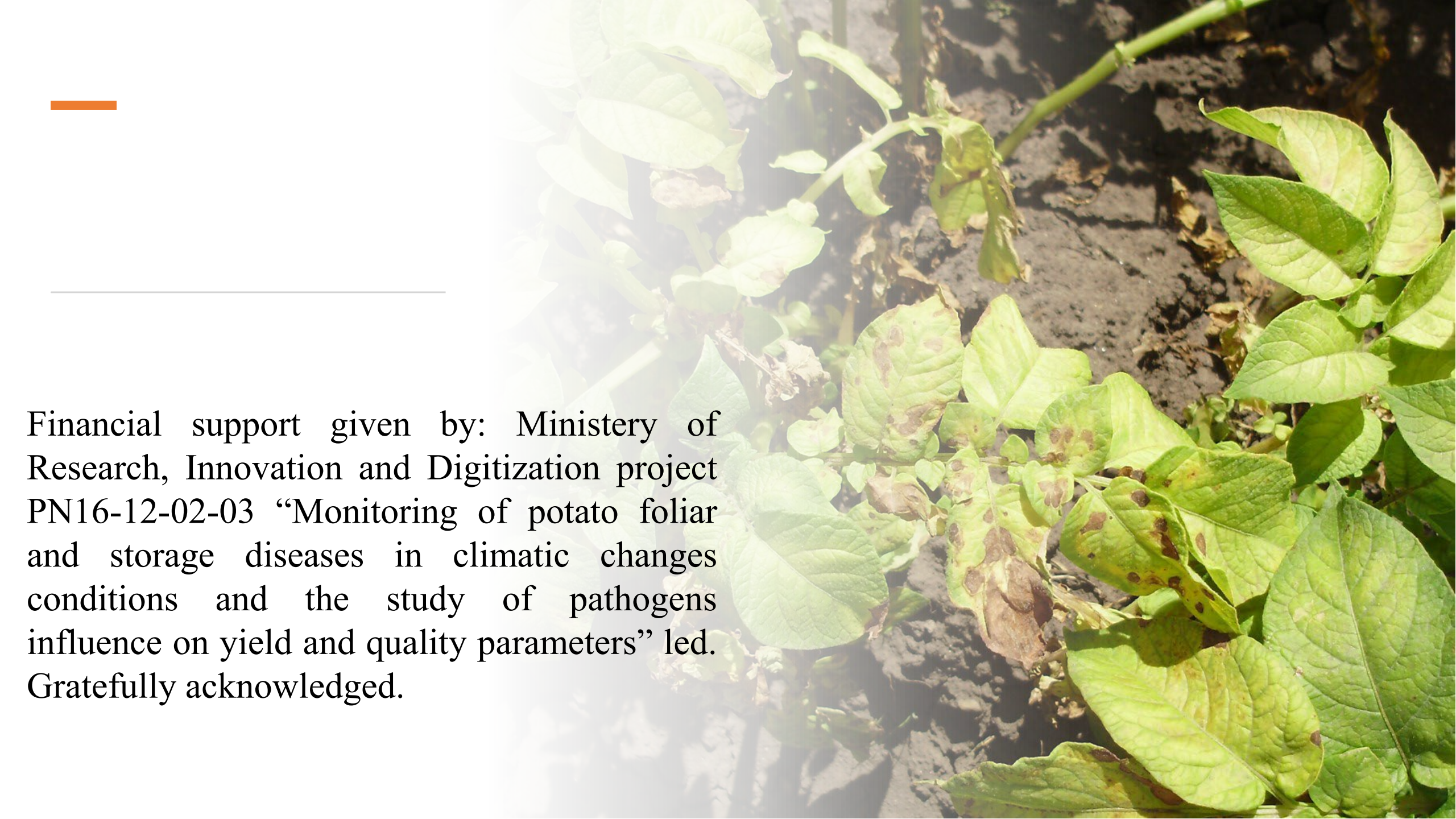
Conclusions

Considering the increased high temperature events in central part of Romania, we could expect a longer duration and an increased intensity of early blight epidemics in potato crops in future years.

Several factors may have led to increased incidence of early blight in potato crops:

- ❖ Climate change, resulting in warmer summers;
- ❖ Growing of more susceptible potato varieties;
- ❖ Decreased use of broad-spectrum fungicides for the control of late blight (*Phytophthora infestans*).





Financial support given by: Ministry of Research, Innovation and Digitization project PN16-12-02-03 “Monitoring of potato foliar and storage diseases in climatic changes conditions and the study of pathogens influence on yield and quality parameters” led. Gratefully acknowledged.

Thank you for your
attention!

