



Introduction:

Integrated late blight control supposed to use cultural, biological and chemical measures. The aim is to use techniques at the right time without completely destroy of the disease, ensuring control methods to protect the environment and useful organisms. Therefore, between 2010-2011, two potato fields were setup with the purpose to evaluate and compare the efficacy of different fungicides used in Romania for potato late blight control.

Agronomic measures:

- Phyto - sanitary care represents a complex with prophylactic character to avoid the infection and to prevent the spread of the disease on an epidemic level.
 - Eliminated tubers from sorting process represent a dangerous source of infection because the fungus produces spores and infected plants appears just when potato plants are raising up.
 - Cultural methods are looking to provide normal and vigorous development of potato crops.
 - Attentive selection of tubers, sprouting, planting in optimal time, correct fertilization, maintenance in time provided a normal development of plants and make shorter the favorable periods for disease attack.
 - Unbalance fertilization, especially with nitrogen determine huge foliage, proper for late blight attack.
 - Maintenance and protection against other diseases and Colorado potato beetle are important because stressed plants are sensitive to late blight.
 - Weeds are in permanent concurrence with potato for all environmental factors. Their excessive foliage development reduces air currents making humid periods longer and increases the chance for late blight appearances.
 - Vine killing in the case of diseased potato crops is a measure to reduce the frequency of tuber attack.
- To stop the late blight cycle on potato crops are recommended chemical products for haulm destruction.

Field trial methods

Year	2010	2011
Variety	Sante	Sante
Sowing date	28 April	13 May
Experimental design	Complete randomized block design (4 replicates)	
Plot size (sqm)	25	25
Spray equipment	Knapsack sprayer	
Harvest date	14 September	22 September

Field trials results

2010

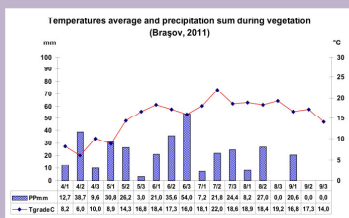
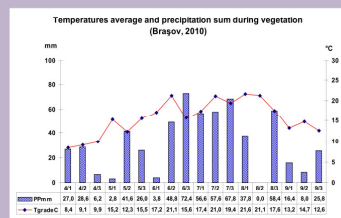
Plot	Foliar late blight (%)							Yield to/ha	Tuber blight (%)
	Data1 June, 17	Data2 June, 28	Data3 July, 8	Data4 July, 19	Data5 July, 29	Data6 Aug, 9	Data7 Aug, 19		
Untreated	10.5 a	18.2 a	28.0 a	33.0 a	50.0 a	64.4 a	87.0 a	22.7 a	5.2 a
No. 1	2.0 b	2.8 b	3.3 b	3.8 b	5.2 b	8.2 b	9.0 b	36.0 b	1.5 b
No. 2	2.3 b	3.1 b	3.6 b	4.2 b	5.6 b	6.3 b	8.5 b	37.5 b	1.8 b

2011

Plot	Foliar late blight (%)							Yield to/ha	Tuber blight (%)
	Data1 June, 24	Data2 July, 6	Data3 July, 15	Data4 July, 25	Data5 Aug, 2	Data6 Aug, 12	Data7 Aug, 23		
Untreated	1.28 a	3.0 a	15.0 a	25.0 a	53.8 a	62.6 a	80.0 a	21.1 a	2.8 a
No. 1	0.02 b	0.5 b	2.0 b	3.0 b	3.8 b	4.2 b	4.9 b	35.5 b	0.3 b
No. 2	0.03 b	0.8 b	3.0 b	4.0 b	4.2 b	5.0 b	5.6 b	33.9 b	0.5 b

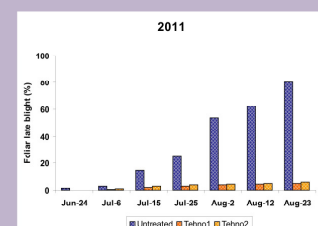
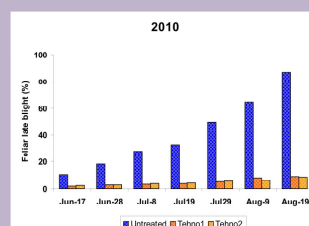
Climatic conditions

2010 - Epidemic phase of the disease was devastating and quickly installed (late blight apparition July 1st). On July and August heavy rains and high temperatures contributed to foliage dying. 2011 - On June, rains accompanied by high temperatures led to an early late blight appearance. (June, 21th). From July to the end of potato growing season rainfall were increasingly reduced, (53.5mm, represented only 39.2% from the multiannual average).



Fungicide spraying program (Brasov 2010-2011)

Plot	Spray 1		Spray 2		Spray 3		Spray 4		Spray 5		Spray 6		Spray 7	
1	Untreated (control)													
	Product	Dose /ha	Product	Dose /ha	Product	Dose /ha	Product	Dose /ha	Product	Dose /ha	Product	Dose /ha	Product	Dose /ha
2	Odeon 020 WC	1.0 kg	Electis 75 WC	1.5 kg	Curzate Manox	2.5 kg	Armetil Cobre	2.5 kg	Dithane M 45	2.0 kg	Odeon 020 WC	1.0 kg	Banjo 500 SC	0.4 l
3	Armetil M	2.5 kg	Folpan 80 WDC	2.0 kg	Infinito 687.5 SC	1.4 l	Odeon 820 WG	1.0 kg	Consent o 450 SC	2.0 l	Banjo 500 SC	0.3 l	Banjo 500 SC	0.4 l



CONCLUSIONS:

Integrated control of late blight is a managerial technique combination to maintain the disease on a low level and in the same time to protect the environment. Integrated control directories are:

- Cultural hygiene to limited the primary infection focus.
- Using resistant varieties to limit late blight attack on foliage and tubers.
- Fungicides apply using forecasting methods (Agroexpert system) and further treatments until harvest at recommended intervals.
- Reduce application intervals (4 maximum 7 days) when the infection pressure is high

Acknowledgement

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