



EXPIERENCE AND RESULTS OF APPLE SCAB SIMULATION MODEL RIMpro ADOPTION IN PRACTICE IN LATVIA

R.Rancane, M.Eihe, L.Vilka

Latvian Plant Protection
Research Centre
Riga, Latvia



Venturia inaequalis (Cooke) Wint.) is the most important fungal pathogen in fruit-growing in Latvia.



The simulation model **RIMpro** gives information on the discharge of ascospores and can be helpful in determining the time of the severe infection during the primary scab infection period.





Adaptation of apple scab **simulation model RIMpro** in integrated plant protection in Latvia was carried out in Latvian Plant Protection Research Centre during 2003 – 2007 (2003 – 2005 in 1, 2006 – 3 and 2007 – 8 farms).

In 2007 **the aim of investigation** was to determine efficacy of RIMpro use in practice in Latvia.

MATERIALS AND METHODS



Weather stations located in different regions of Latvia



RIMpro installed on PC of LPPRC

Type of weather stations: Metos Compact (company Pessi) – 1, Lufft – 9

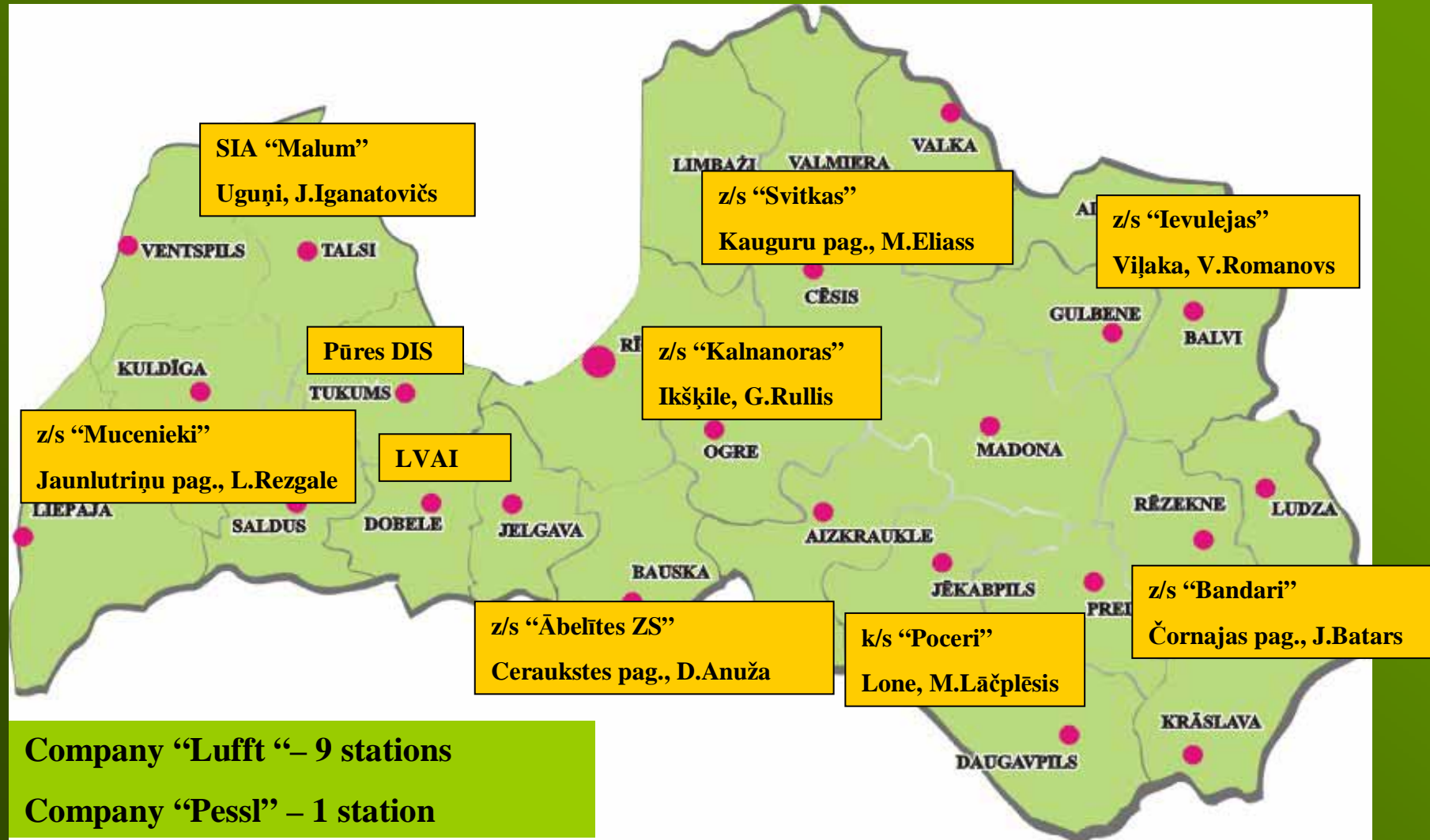
RIMpro signals above 50 RIM value were accepted as the risk

Information for growers were sent via mobile phone

Orchards were inspected 3 times per season to determine efficacy of signals showed by RIMpro

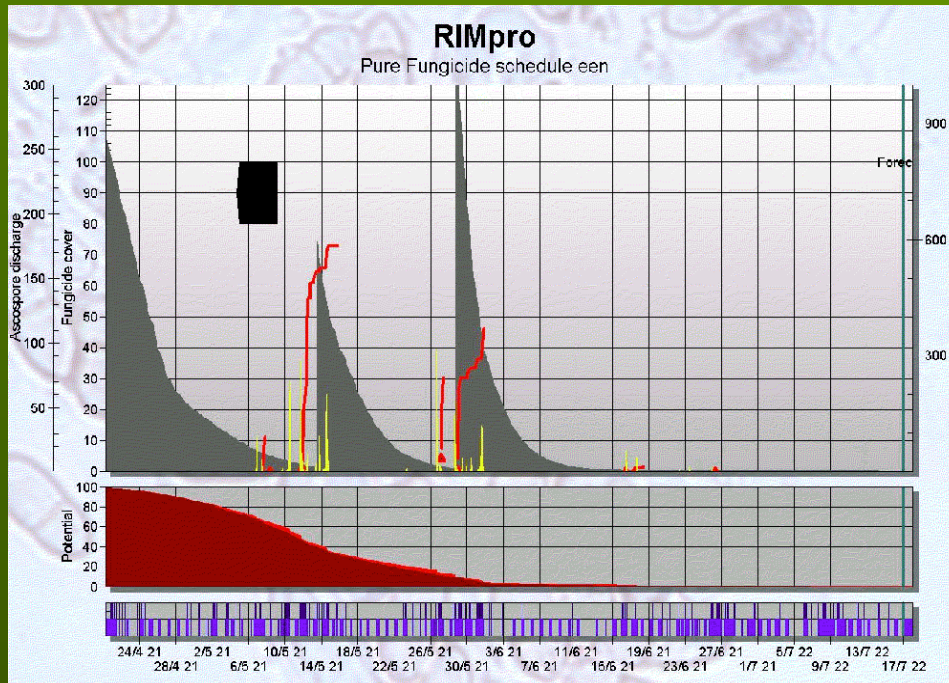
Type of assessments: damaged surface by 9 scores scale, calculated in %, on 100 leaves and fruits per plot

LOCATION OF THE WEATHER STATIONS



RESULTS

- In all apple orchards the first protective application with copper containing fungicide Champion was carried out during green tip stage of apples before ascospores discharge (15. – 28.04.).
- Further applications were carried out according to RIMpro signals and our recommendations.



PURE RESEARCH STATION

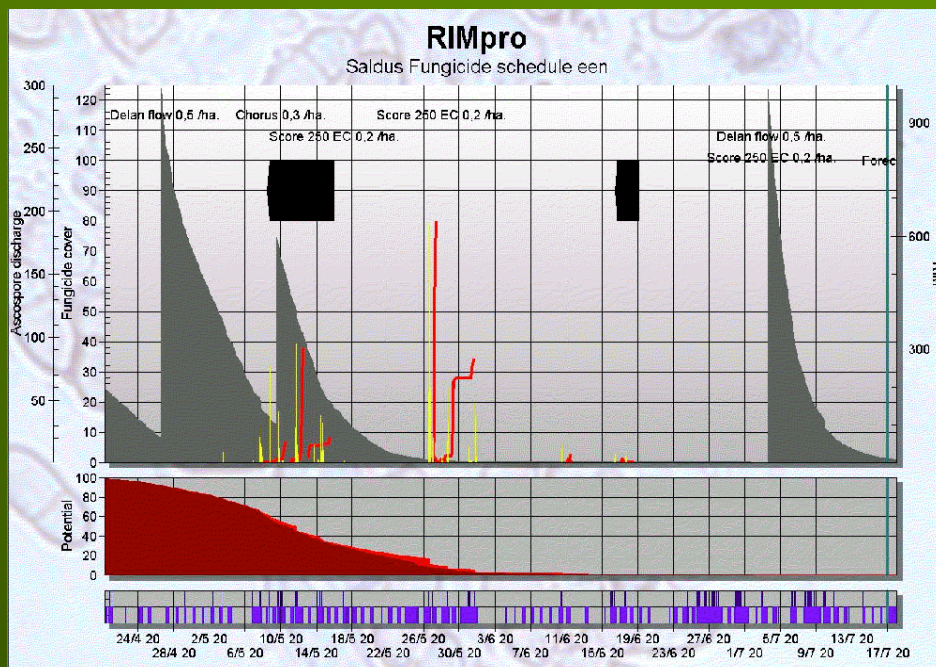
Tukums region
west / central part of Latvia

Cultivar – ‘Antonovka’

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	17.04.	–	Champion 50
08.05.	90	–	6.0	–
11. – 16.05.	441	14.05.	0	Chorus 75
27.05. – 01.06.	246	29.05.	0	Effector
17. – 19.06.	13	–	0	–

Apple scab incidence in Pure Research Station

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
3 + 0	4.0	–	0	–	–	–



MUCENIEKI

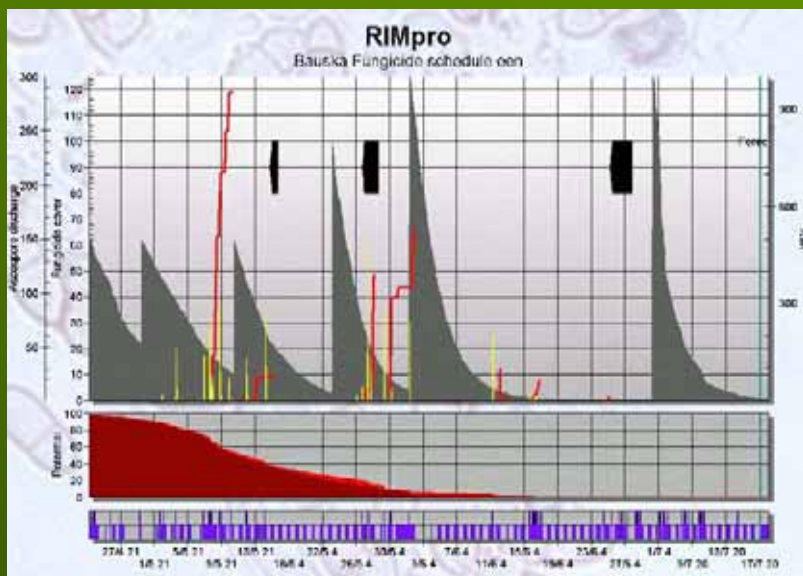
Saldu region south / west part of Latvia

Cultivar – ‘Saltanat’

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	16.04.	–	Mancozeb
–	–	27.04.	–	Effector
8. – 13.05.	95	10.05.	16	Chorus 75
14. – 16.05.	42	16.05.	21	Score 250
27.05. – 01.06.	276	28.05.	6	Score 250

Apple scab incidence in farm "Mucenieki"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
5 + 1	46.0	55.0	5.0	0	46.0	11.0



ABELITES

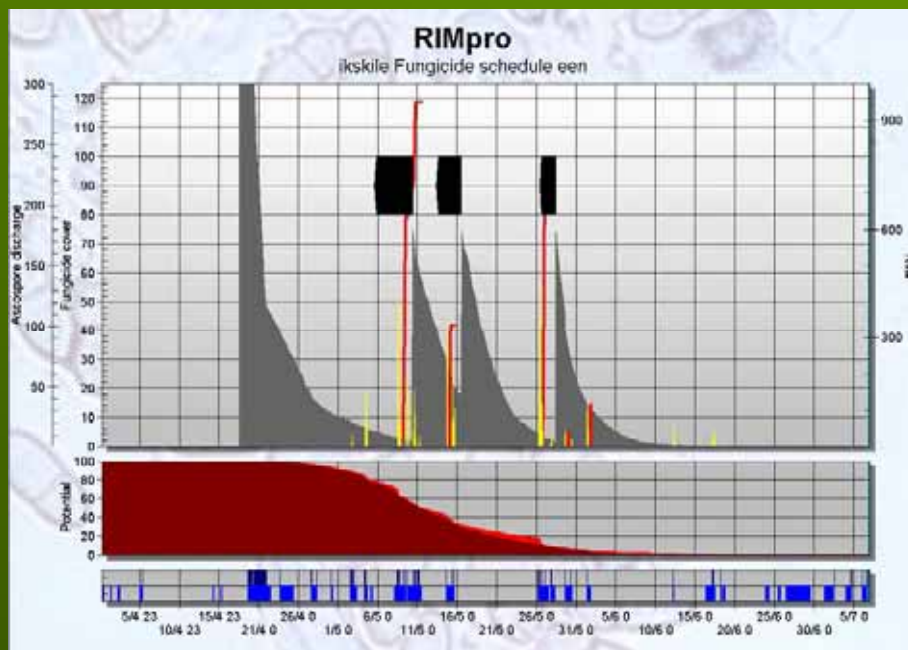
Bauska region south / central part of Latvia

Cultivar – 'Ligol'

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	15.04.	–	Champion 50
8. – 9.05.	421	11.05.	13	Mancozeb + Chorus 75
14. – 16.05.	58	–	22	–
26. – 28.05.	210	23.05.	4	Candit
29.05. – 02.06.	422	01.06.	6	Mancozeb + Chorus 75
11. – 12.06.	98	–	0	–
15. – 17.06.	60	–	0	–
24. – 29.06.	0	30.06.	0	Mancozeb + Score 250

Apple scab incidence in farm "Abelites"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
5 + 0	4.0	2.0	0	0	3.0	0



KALNANORAS

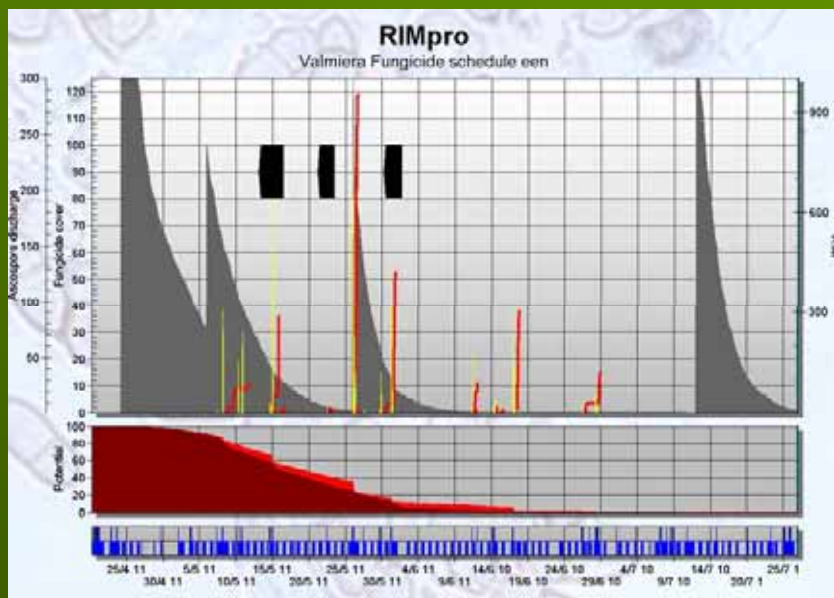
Ogre region central part of Latvia

Cultivar – 'Spartan'

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	18.04.	–	Champion 50
–	–	27.04.	26	Mancozeb
8. – 11.05.	832	10.05.	14	Chorus 75
14. – 15.05.	337	16.05.	25	Chorus 75
26. – 28.05.	652	28.05.	0	Chorus 75
29.05. – 01.06.	78	–	12	–

Apple scab incidence in farm "Kalnanoras"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
4 + 1	27.3	39.0	0.25	4.5	82.3	6.9



SVITKAS

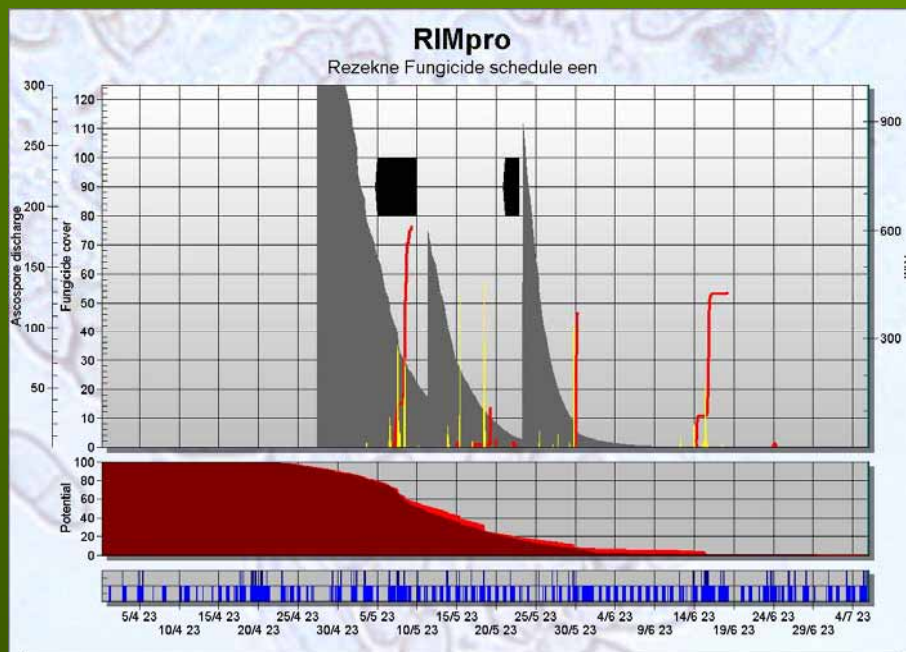
Valmiera region north part of Latvia

Cultivar – 'Auksis'

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	24.04.	–	Champion 50
8. – 12.05.	53	06.05.	39	Candit
15. – 16.05.	168	17.05.	14	Score 250
26.05.	739	26.05.	18	Mancozeb + Chorus 75
31.05. – 01.06.	224	04.06.	0	Score 250
12.06.	89	–	0	–
15. – 18.06.	83	–	0	–
27. – 29.06.	60	–	0	–

Apple scab incidence in farm "Svitkas"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
5 + 1	16.0	16.0	0	0	18.0	0



BANDARI

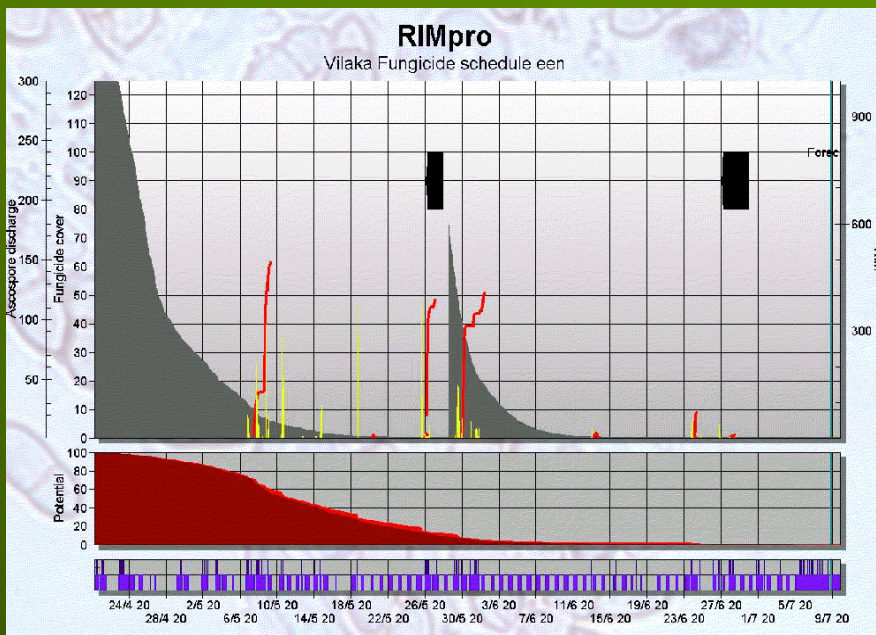
Rezekne region east part of Latvia

Cultivar – 'Belorusskoye Malinovoye'

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	28.04.	–	Champion 50
8. – 10.05.	437	12.05.	43	Chorus 75
20.05.	110	24.05.	11	Effector + Chorus 75
31.05.	372	–	5	–
15.– 19.06.	356	–	0	–

Apple scab incidence in farm "Bandari"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
3 + 0	0	0	0	0	0	0



IEVULEJAS

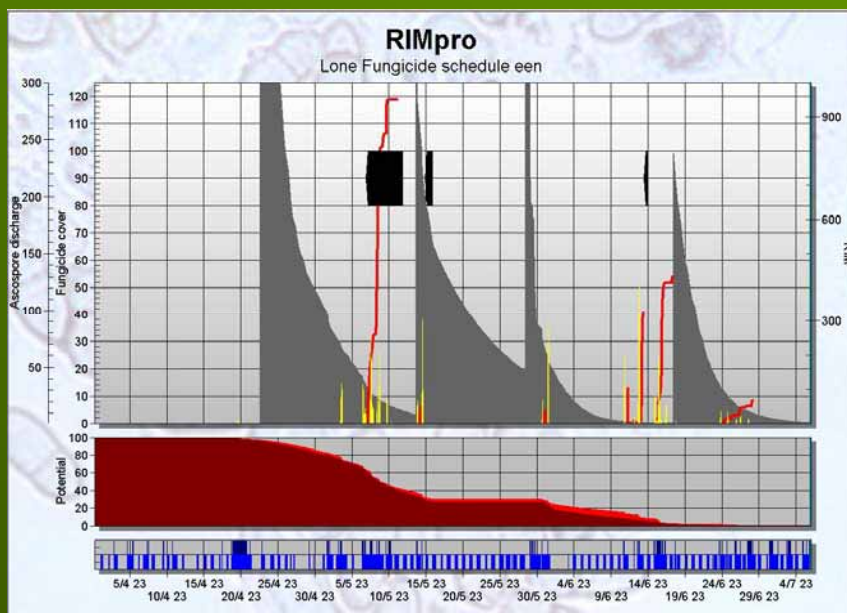
Balvi region north / east part of Latvia

Cultivar – ‘Lobo’

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	20.04.	–	Champion 50
8. – 10.05.	364	– (!)	11	– (!)
27.05.	385	29.05.	0	Chorus 75
30.05. – 02.06.	299	–	19	–

Apple scab incidence in farm "Ievulejas"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
2 + 1	54.0	94.0	38.0	76	–	–



POCERI

Jekabpils region south / east part of Latvia

Cultivar – 'Geneva Early'

Primary scab infection period		Fungicides use		
Dates	RIM values per day (>150 RIM)	Date	Residues from previous use, %	Fungicide
–	–	23.04.	–	Champion 50
08. – 09.05.	536	– (!)	18	– (!)
15.05.	50	14.05.	0	Mancozeb + Chorus 75
31.05. – 01.06.	22	29.05.	22	Mancozeb + Candit
12. – 14.06.	145	– (!)	0	– (!)
16. – 18.06.	405	18.06. (!)	0	Candit (!)

Apple scab incidence in farm "Poceri"

Number of fungicides applications (during primary + secondary infection period)	Amount of infected objects, %					
	Assessment – 3 rd 10 day period of June				September	
	Control		RIMpro signals		Control	RIMpro signals
	leaves	fruits	leaves	fruits	fruits	fruits
4 + 1	85.0	92.0	3.0	3.0	96.0	–

CONCLUSIONS

- The common apple scab primary infection period lasted from the May 8th until the June 19th in Latvia, 2007.
- In different regions there were 3 – 6 separate scab infection periods above 50 RIM values (1 – 4 above 100 RIM).
- 3 – 5 fungicides applications (including the first protective) were necessary for sufficient scab control if carried out in determined terms.

- Even one undone application resulted with significant scab expansion (farm "Ievulejas").
- In 2007 mainly curative fungicides Chorus 75 or Score 250 separately or in mixture with protective product after infection was recommended.
- In generally RIMpro signals were acceptable for control apple scab in Latvia if the fungicides applications were carried out accordingly to recommendations.

PROBLEMS...

- technical problems
- access to internet
- professional advisors
- computer specialists
- amount of weather stations
- no precisely weather prognosis

- How to make RIMpro user friendly???

- It is easier to create new DSS than to achieve that farmers use and trust in it.



**THANKS FOR YOUR
ATTENTION!!!**