

Mejores prácticas para el control de enfermedades en papa

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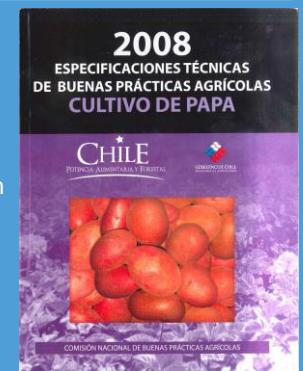


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Mejores prácticas (IPM)

Preventive measures & observations in the field must have been considered before intervention with direct plant protection measures takes place

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Mejores prácticas (IPM) principles

1. Preventive measures, e. g. crop rotation, resistant varieties
2. Usage of tools for monitoring
3. Usage of threshold values and decision-making systems
4. Non-chemical methods to be preferred
5. Agrochemicals applied as target-specific as possible and with least side effects
6. Reduction of use to necessary levels
7. Application of anti-resistance strategies
8. Check of success based on records and monitoring

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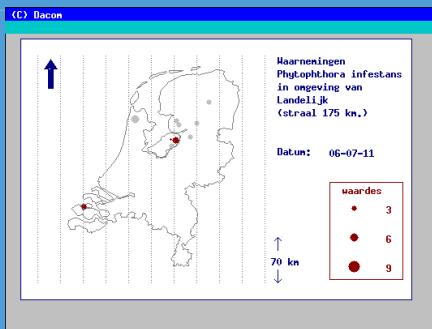
1. Resistant varieties



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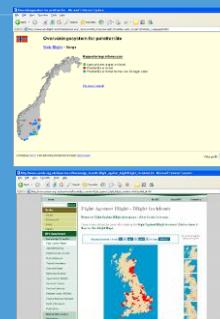
DuRPh Resistente a la malta blanca. Susceptible a la malta negra y a la podredumbre del tubérculo.

2. Usage for tools of monitoring

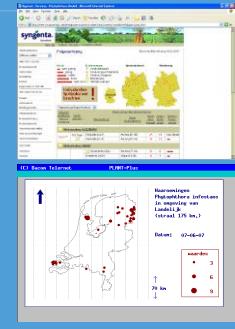


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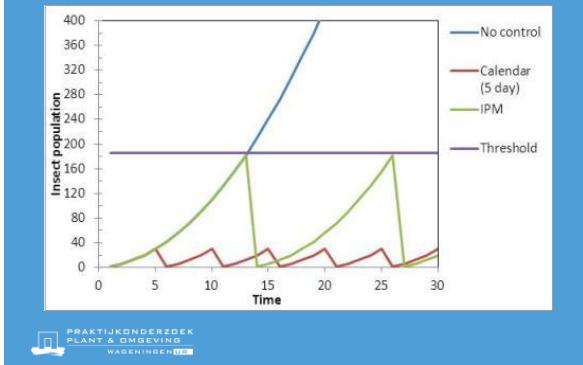
2. Monitoring infected fields in Europe



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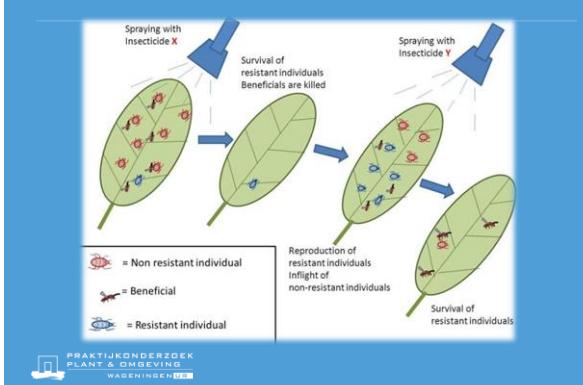
3. Usage of threshold values



5. Agrochemicals applied as target-specific as possible and with least side effects

EuroBlight		Fungicide comparison - Updated 15 July 2010									
A potato late blight network for Europe		The effectiveness of fungicide products/formulations for the control of P. infestans based on the results of field trials carried out during 2006-2009, and only compounds included in these trials are used for late blight control. 2010 is based on field experiments and experience of the products from 2006-2009.									
		Leaf blight 2					Tuber blight				
Product ¹	Active ingredient ²	Effectiveness					Mode of action				Mobility i
domofoam	3	2.8	+	+	+	+	Protectant	Curative	Anti sproutulant		contact
chitosanol	3	2.8	+	+	+	+					contact
flutriafol	3	2.8	+	+	+	+					contact
flutriafol + mancozeb	3	2.8	+	+	+	+					contact
fenamoxazole + mancozeb	3	2.8	+	+	+	+					contact + fr.
fenpropidin	4.0	4.0	+	+	+	+	N/A				
benomyl + mancozeb	3.7	3.7	+	+	+	+	+	+			translaminar
ompadex + mancozeb	3.7	3.7	+	+	+	+					translaminar
ompadex + fenpropidin	3.7	3.7	+	+	+	+					translaminar
dimethylisopropanecarb	3.0	3.0	+	+	+	+					translaminar
fenpropidin + mancozeb	2.6	2.6	+	+	+	+					translaminar
benazolin + mancozeb	2.6	2.6	+	+	+	+	N/A				systemic + fr.
methiocarb + mancozeb	2.6	2.6	+	+	+	+	N/A				systemic + fr.
metakal-H + flutriafol	2.6	2.6	+	+	+	+	N/A				systemic + fr.
prophamate-HD + mancozeb	2.6	2.6	+	+	+	+					systemic + fr.
prophamate-HD + fenpropidin	2.4	2.4	+	+	+	+					systemic + fr.
prophamate-HD + mancozeb	2.0	2.0	+	+	+	+					systemic + fr.

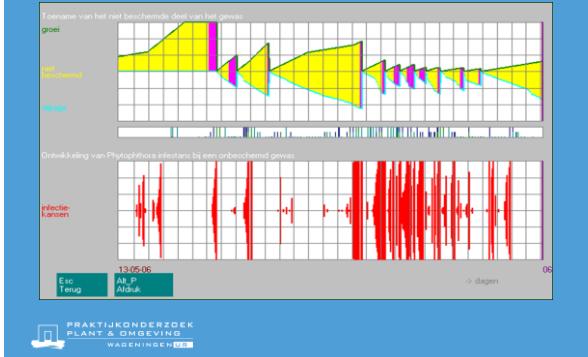
7. Anti-resistance strategies



4. Usage of non-chemical methods



6. Reduction of use to necessary levels



8. Check of success & monitoring

Potato-Vietnam (Dec-Jan-Feb)

18 mancozeb
 20 chlorothalonil
 21 mancozeb + cymoxanil
 24 copperOH
 25 mancozeb
 28 chlorothalonil
 30 mancozeb + cymoxanil
 31 chlorothalonil
 37 copperOH
 48 mancozeb
 56 chlorothalonil
 62 mancozeb
 67 mancozeb + cymoxanil



Most important potato diseases



Phytophthora infestans
(late blight)



Alternaria spp.
(early blight)



Rhizoctonia solani
(black scurf)



Helminthosporium solani
(silver scurf)

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P. infestans (late blight)



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Mejores prácticas (IPM) de tizón tardío

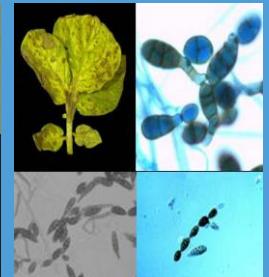
- Crop Rotation
- Primary inoculum sources
- Resistant Varieties
- Fungicides
 - First spray, spray frequency, product choice
- Decision Support Systems
 - Historical weather and forecast
 - Monitoring of disease in region/field
 - Details on pathogen, fungicides, variety

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Alternaria solani



A. alternata



Photos: Plant Research International

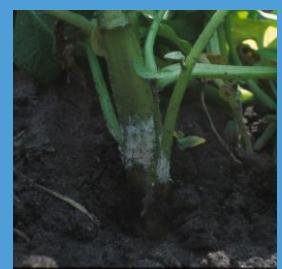
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Mejores prácticas (IPM) de tizón temprano

- Prevent stress: fertilisation, virus
- Resistant varieties?
- Fungicides
 - Side effect of LB fungicides
 - Specific Alternaria fungicides
 - Timing
 - Resistance management (QoI's)
- Harvest: very dry harvesting conditions cause small wounds → Alternaria in tubers

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Rhizoctonia: stem canker & black scurf



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Rhizoctonia: stem canker & black scurf



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Mejores prácticas (IPM) of Rhizoctonia

■ Tuber treatment in ware & starch potatoes

■ Furrow treatment in seed potatoes

■ Risk analysis

- Growing frequency of potato low (1:4-5)
- Planting later (rel. warm soil)
- Big seed tuber
- Planting tubers without black scurf
- Ridging later (around emergence)
- Haulm pulling or green harvesting
- Harvest early after haulm destruction
- Applying Carvon inhibits sprout growth & Rhizoctonia

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Helminthosporium solani (silver scurf)

■ Quality problem for table potatoes and seed potatoes

■ Loss of water

- Financial loss
- Loss of viability
→ late emergence & reduced crop vigour
- Less stems



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Mejores prácticas (IPM) of silver scurf

■ Quick drying and no condensation of water during storage

■ Planting disease free seed potatoes

■ Fungicide against Rhizoctonia in furrow for seed and table potatoes has side effect on silver scurf

■ Applying fungicides before storage of seed potatoes

- Harvest early
- Harvest in two phases for fast drying tubers

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Gracias por
su atención

