



## Practice Abstract # 4

### IPM control strategies for late blight: Reduce fungicide use by 45–100%

#### Problem statement:

Late blight is an extremely destructive potato disease, causing severe yield and quality losses. Experimental, fully integrated, control strategies combine diversity enhancing methods with sanitary measures, more resistant cultivars, soil management, monitoring & evaluation and targeted control to create more durable cultivation methods that allow for a strongly reduced chemical dependency and input.

#### 2025 Demonstrations:

Three demonstrations of the IPM/ICM late blight control strategy were carried out in Invergowrie (Scotland), Ploudaniel (Brittany, France) and Bobrowniki (northern Poland). A range of cultivars representing host resistance levels from “susceptible” to “highly resistant” (but not immune) were grown in each location.

Cultivar resistance group	Treatment	Disease pressure:		
		France Ploudaniel	Poland Bobrowniki	Scotland Invergowrie
All	Common practice	9	13	12
Group S	ICM	6	13	11
Group R2	ICM	5		1
Group G	ICM		7	
Group A	ICM	5	8	0
Group B	ICM	5	1	0
Group C	ICM	5	1	0
Group D	ICM		1	0
Group E	ICM		1	0
Group F	ICM		1	
Group I	ICM		1	

Table 1. Cultivar resistance groups and the number of fungicide applications necessary to keep a healthy crop in three locations in 2025. More information on cultivar resistance groups can be found [here](#).

The first spray application was delayed on more resistant cultivars while disease pressure was low. The higher the resistance level, the longer the delay. In addition, spray timing was determined using a decision support system (DSS).

In France, the climate was wet, in Scotland it was dry and in Poland it was “normal”. In addition, common practice was compared to IPM. The results are summarized in the table.



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By deploying a fully integrated late blight control strategy (described in IPMorama Practice Abstract #3), the dependency as well as the number of sprays could be significantly reduced in all three 2025 IPMorama demonstrations. The main responsible components were a **dedicated decision support system (Farmmaps BlightApp, [www.farmmaps.eu](http://www.farmmaps.eu))** plus the **cultivation of more resistant cultivars**. The reduction in fungicide use realised on more resistant cultivars was 45% in France, ranged from 38-92% in Poland and from 92-100% in Scotland.

The climate is a major influence on the potential reduction of the fungicide input. Wet weather in France “only” allowed for a 45% reduction whereas the dry Scottish 2025 weather allowed for a near 100% reduction of the fungicide input on more resistant cultivars.

A **zero tolerance mind-set** also is an important component: without epidemic development, the *P. infestans* potential for adaptation (virulence and fungicide resistance development) is severely hindered, **strongly benefitting durability of the IPM control strategy**. Fungicide applications thus serve to protect the host resistance genes and vice versa.

### Benefits:

- **Reduced fungicide** use by 45–100% on highly resistant cultivars.
- **Improving cost efficiency**, sprays applied only when necessary.
- **Enhanced disease control** through optimised timing of interventions.
- **Improved long term sustainability** of late blight management through pathogen monitoring.
- **Aligns with societal and policy goals** for reduced chemical reliance.
- IPM/ICM is **relevant to both organic and conventional production** systems.

### Practical recommendations:

1. **Cultivar Selection:** Prioritise varieties with (multiple) late blight resistance genes.
2. **Sanitation Practices:** Remove volunteers, potato dumps and infected plants.
3. **Decision Support Systems:** Use weather DSSs to guide timely interventions.
4. **Targeted Treatments:** Apply direct control agents ONLY when risk thresholds are met.
5. **Cultural Practices:** Adjust irrigation to reduce leaf wetness and rotate crops 1:4 or wider to minimize pathogen carryover.
6. **Monitoring:** Regularly scout fields to detect early symptoms and support *P. infestans* population monitoring.

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