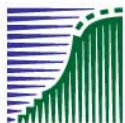




*World-class  
agriculture,  
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**agriculture, nature  
and food quality**



# Scales of early and late blight, a topic for discussion

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# Overview

- **EPPO**
- **Guideline**
- **Scales**





# EPPO



- **European and Mediterranean Plant Protection Organisation**

- Created in 1951 by 15 countries
- Now 48 member countries
- International cooperation in plant protection (plant quarantine and plant protection products)





# EPPO's mission

- **EPPO promotes the exchange and synthesis of information concerning:**
  - technical justification of phytosanitary measures
  - sustainable and effective plant protection practices
  - scientifically-based harmonization of methods and procedures
- **developing guidance based on input of experts collaborating in panel and working group meetings**
- **main outputs of the EPPO organization are: regional standards and guidelines**
- **EPPO standards are used for registration purposes (91/414)**



# Panels

- Panels are composed of experts nominated by EPPO member countries
- Meet once a year (or twice)
- Prepare draft recommendations for the Working Party, most of which in the form of standards
- 8 Panels
  - Panel on efficacy evaluation of fungicides and insecticides



## Standards

- **Specific scope**
  - This standard describes the conduct of trials for the efficacy evaluation of fungicides.
- PP 1 /2 (3) *PHYTOPHTHORA INFESTANS* ON POTATO
- PP 1 /.. (..) *Alternaria solani* and *Alternaria alternata* on the outdoor production of potato and tomato





# Assessments

- Assessments should be carried out in the **net plot**.  
**(at least 25m<sup>2</sup>)**
- Plots are assessed for the extent of blight spots on the leaves. Each plot is scored as a whole for **% disease severity**



- **Per cent disease:**

0 = no infection

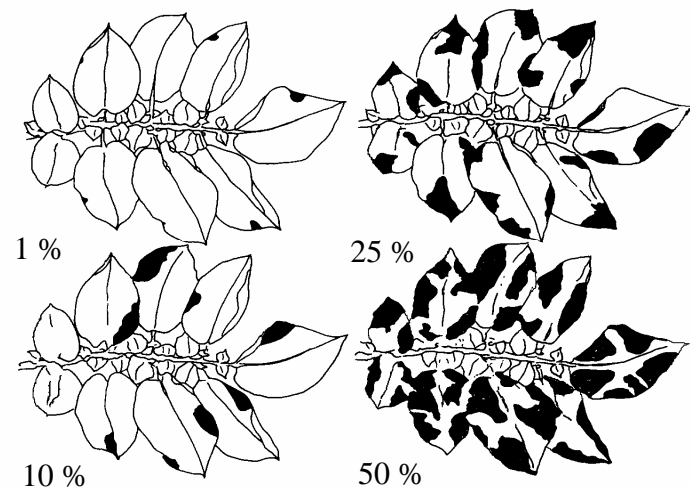
1 = up to 10 spots per plant or up to 1 leaflet in 10 attacked

5 = around 50 spots per plant or up to 1 leaflet in 10 attacked

10 = up to 4 leaflets in 10 affected; plants still retaining normal form

25 = nearly every leaflet with lesions but plants still retaining normal form; plot may look green though every plant affected

50 = every plant affected and about half of leaf area destroyed by blight; plot looks green, flecked with brown.



Source EPPO



# Possible alternatives

- **Plant Protection Service The Netherlands**
- **ADAS**
- **SAC**
- **Wageningen UR**

# PPS The Netherlands

Index for *Phytophthora infestans* assessments on foliar of potato.

Score	Description
10	No infection.
9.9	1 to 2 infected leaflets per plot.
9.75	3 to 5 infected leaflets or 1 to 2 infected stem tips per plot.
9.5	Maximum of 5 % of plants per plot infected on 1 to 3 leaflets.
<b>9</b>	<b>Between 5 and 10 % of plants per plot infected on 1 to 5 leaflets per plant.</b>
8	Between 10 and 20% of plants per plot infected on an average of 5 leaflets per plant.
7	Between 20 to 30% of plants per plot infected on an average of 10 leaflets per plant.
6	Between 30 to 50% of plants per plot infected on 10% of the leaflets per plant.
5	Between 50 and 75% of plants per plot infected (leaflets and stem parts). Crop still has a predominantly green appearance. Disease can be smelled.





# SAC

## Potato foliage blight key

Percentage	Description
0	Not seen in plots
0.1	1 or 2 lesions per plot (of 100 plants)
0.2	3 or 4
0.3	5 to 8
0.4	9 to 16
0.5	17 to 31
0.6	32 to 63
0.7	1 or 2 lesions per plant
0.8	3 or 4
0.9	5 to 9
<b>1</b>	<b>10</b>
5	50
25	Nearly every leaflet with blight lesions – plants still retaining their normal form; field may smell of blight, but looks green though every plant affected.
50	Every plant affected and about half of the leaf area destroyed by blight; field looks green flecked with brown.
75	About three-quarters of the leaf area destroyed by blight; field looks neither predominantly brown or green.
95	Only a few leaves green, but stems green.
100	All leaves dead, stems dead or dying.

# WUR the Netherlands



Severity (%)	CIP scale		Symptoms		
	value	PPS	Late blight	Early blight	
0	1	10	No infection visible		
0.001	-	-	1	10-15	lesions per plot (<50 m <sup>2</sup> )
0.002	-	-	2	20-30	„
0.005	-	-	5	50-75	„
0.01	-	9.5	6-10	75-200	„
0.1	-	-	20-30	200-500	„
0.5	-	-	1	10-15	lesions per 2 plants
<b>1</b>	<b>-</b>	<b>9</b>	<b>1-3</b>	<b>10-100</b>	<b>lesions per plant</b>
2.5	2	8.5	10	100	„
5	-	8	20	200	„
10	3	7	10%	10%	leaf area dead per plot
25	4	6	25%	25%	„
50	5	4	50%	50%	„
75	6	3	75%	75%	„
90	7	2	90%	90%	„
97.5	8	1	97.5%	97.5%	„
100	9	0	All leaves and stems dead		





## Primary summary

- The most important moment to measure the efficacy of Plant Protection Products on late or early blight in leaves is the early stage of infection.
- Currently used type of assessments are not suitable to distinguish differences in efficacy with the light infection levels of leaf blight during the early stages of infection.



## Topics for discussion

- Is one of the four alternatives an improvement for the currently used scale?
- Is it possible to use the same scale for late and early blight?



**Thank you for  
your attention !**

