

EuroBlight vision and strategic plan

Sustainable management of early and late blight of potato and tomato

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Early and late blight: global threats to food production and food security

Late and early blight of potato and tomato impose a massive economic and environmental burden, with annual losses and control for LB alone exceeding €1 Bn in Europe and almost €5 Bn worldwide. Half of the yield difference between organic and conventional potato crops is attributed to LB and blight fungicides represent ~10 % of the total energy costs (250 GJ/ha) in conventional potato production. A recent survey of more than 300 European stakeholders across the value chain (extension, growers' organisations, suppliers, distributors, processors) showed widespread concern about the threat posed by these diseases: over 95 % of respondents stated that late and early blight are *an increasing problem in both the conventional and organic sector*.

Steps towards achieving integrated and sustainable disease

Blight outbreaks are a major driver of pesticide use in European crops. Restrictions on pesticide use and approval, a lack of new, effective and eco-friendly solutions and the slow innovation rate for alternatives to pesticides exacerbate concerns. These diseases are strongly influenced by weather conditions and the current rise in mean temperatures and increasing variability in local climates makes blight management increasingly complex. Furthermore, temperature increases will change crop distribution and cropping calendars, potentially bringing blight pathogens into contact with more potential hosts, over larger areas, providing new opportunities for establishment, expansion and reductions in crop yield and quality. Intensification of international travel and trade favours rapid migration of new and more aggressive pathogen genotypes within Europe and between continents.

Due to the desire to meet sustainability objectives, a number of these shortcomings are increasingly being a source of rejection of current potato and tomato production methods, in favour of more 'eco-friendly', sustainable agro-ecological systems. Since the late 1990s alternatives which allow reductions in the use of synthetic pesticides have been sought increasingly. This will support the legislative efforts to achieve integrated pest management (IPM) strategies, as required by EU Directive 2009/128/EC and the priorities of the 'Green Deal' and 'Farm to Fork' initiatives launched by the EU as part of the Horizon Europe strategic framework programme.

The EuroBlight strategic action plan for sustainable blight control in Europe and worldwide

EuroBlight is a network of key potato and tomato stakeholders across the value chain (researchers, extension, breeding and plant protection companies, etc.). The overall objective is:

To identify, evaluate and combine the best possible tools to predict, manage and control late and early blight as part of a sustainable ICM strategy.

Continued research and extension efforts are needed to achieve integrated pest management (IPM) strategies, as required by EU Directive 2009/128/EC and the EU Green Deal and Farm to Fork initiatives.

Four major action points to reach these goals have been identified:

Action point 1 – strengthen effective ICM systems

EuroBlight is convinced that effective and sustainable control of late and early blight requires an expanded array of management approaches that can be combined into coherent and cost-effective IPM strategies.

EuroBlight will support and implement the ongoing refinement of such a diversified toolbox to include:

- Develop predictive methods to assist in risk assessment and management
 - Disease surveillance and pathogen monitoring including all stakeholders - to calibrate prophylactic measures and determine risk – including new technologies (sensors, mobile apps, etc.)
 - Improve and develop new decision support systems, to cope with emerging pathogen populations and climate change.
- Improve control solutions and their targeted and sustainable deployment
 - Use healthy seed
 - Reduce primary inoculum sources
 - Use more resistant cultivars
 - Include biocontrol solutions in both organic and conventional production
 - Optimize the use of fungicides (choice, dosage and timing)
 - Include Innovative cultural methods (e.g. intercropping, strip cultivation).

Action point 2 – manage crop health

EuroBlight constantly faces the impact of interactions between pathogens, including diverse clones and genotypes of *P. infestans* and species of *Alternaria*, and of conflicting control options. The 'One Health' conceptual framework and societal demands for wider health management form the backbone of the European Green Deal and its operational translation into the Farm to Fork strategy, and depend on a holistic vision of the biosphere and its health.

EuroBlight recognises the need to shift from a traditional mindset of managing individual diseases to this more holistic approach to crop health (from IPM to ICM). It also acknowledges the value of diverse types of agriculture (regenerative, organic, low input and conventional systems), which contribute to global food production and security, and appreciates the need for specific IPM tools and combinations for each.

EuroBlight is committed to:

- Design and test IPM systems which combine diverse tools
- Consider multiple interactions and pathosystems for the combined management of several diseases from a crop health perspective
- Deliver to the needs of a range of agriculture practice and diverse stakeholders

Action point 3 – develop infrastructure, build capacity, and collaborate internationally

Early and late blight of potato and tomato are global crop diseases affecting diverse stakeholders (professional growers, subsistence farmers, industry, home gardeners, consumers, policy makers, etc.). **EuroBlight** is aware of the challenges and opportunities of a global approach to sustainable crop health management, and that this can only be achieved through the cooperation, input and knowledge of a wide variety of actors.

Since its inception, **EuroBlight** has acted as a coordinated pan-European network and therefore strongly supports initiatives to foster cooperation, build capacity and participatory research, and establish permanent infrastructure for the collation, integration, use, and dissemination of data relevant to IPM design and validation.

Action point 4- communicate and disseminate EuroBlight vision and achievements

Efficient communication, dissemination and outreach by **EuroBlight** is critical for the rapid and widespread adoption of innovative solutions and systems by the wide range of actors involved in blight management. Modern communication tools offer opportunities to best achieve this and reach key players globally.

EuroBlight is committed to implementing a multi-channel communication, dissemination and outreach strategy by:

- Informing about EuroBlight missions, origins and objectives > **'About EuroBlight'** web page
- Delivering our network's vision on blight issues and management > **'EuroBlight Vision'** document to serve as a strategic roadmap
- Relaying EuroBlight achievements > annual **'EuroBlight Highlights'**
- Formulating and communicating our priorities and commitments > **'Euroblight Statements'**.
- Assessing **EuroBlight** impacts through key performance indicators