

# Risks to plant health: European Union priorities for tackling emerging plant pests and diseases

The introduction and spread of plant pests and diseases among food crops and other plant species, particularly in forestry and horticulture, has significant consequences globally for farmers, the seed industry, policy-makers and the general public. The recent initiative by the European Commission to upgrade certain protective measures against plant pests is important in reinforcing technical aspects of risk analysis, quarantine and other controls. It also provides the opportunity to raise awareness of the need to tackle the wider issues associated with the threat from emerging plant pests and diseases to crops and forests and to the other ecosystem services provided by the environment.

In this report, the European Academies Science Advisory Council (EASAC) aims to do the following:

- clarify what is needed to achieve European Union (EU) goals in the analysis and management of plant health risk;
- highlight where science and innovation can contribute to improved surveillance, pest and pathogen characterisation, and integrated control options for sustaining plant health;
- evaluate where policy disconnects need to be resolved and where flexible, evidence-based, proportionate regulation must be ready to respond to future scientific advances and environmental change;
- identify gaps in knowledge and skills that need to be filled.

This report draws on previous EASAC analysis of related issues for plant sciences and breeding and for improving preparedness for and responsiveness to human infectious disease, and on published work by other advisory groups and guidance from EASAC academy-nominated experts. The issues addressed are relevant for agriculture, horticulture and forest crops as well as for plants in their natural habitats.

Recent evidence confirms that trans-boundary pests and diseases are of increasing importance for crop plant and ecosystem health and that climate change is having an impact. Previous regulation in the EU, governed by the European Community Plant Health Regime, has been only partly effective. From the perspective of EASAC, the new proposals from the European Commission to improve contingency planning and governance, and to simplify and strengthen regulation for plant health, must

be accompanied by policy development and strategic action across a broad front to coordinate research and the collection and sharing of knowledge for improved surveillance and innovation.

EASAC recommendations cover the following priorities.

## Surveillance systems

- Improving monitoring of pathogens and pests, to collect standardised and comprehensive data, with establishment of early warning systems.
- Committing to long-term data recording and better linkage between databases, including those for genetic characterisation, with faster exchange and use of epidemiological and other information between Member States and other regions.
- Using new forms of monitoring, including the social media.
- Extending surveillance outside of managed agricultural environments to natural habitats.
- Continuing to consider issues for bioterrorism.
- Ensuring that relevant work in universities and public research institutes is appropriately funded and coordinated with the activities of the plant health authorities.

## Research and training

- Putting in place the necessary scientific infrastructure and networks to support surveillance, regulation and innovation.
- Ensuring that the scope of Horizon 2020 takes account of the detailed recommendations for the fundamental and applied research agenda compiled by the scientific community to address emerging risks within the broader context of understanding plant health. The recommended scope includes pest and disease diagnosis; biology, ecology and epidemiology of plant pests and pathogens and their relationships with hosts and vectors; plant pest and disease resistance; biological and cultural strategies for sustainable pest and disease management; and evaluation of how healthy plants live in association with microbes that provide direct or indirect benefit.

- Supporting this multi-disciplinary research strategy by reducing fragmentation in research capacity and priority-setting across Member States to sustain critical mass. For example, the ERA-NET initiative EUPHRESCO should be continued and extended.
- Increasing use of research and surveillance data in modelling, prediction and extrapolation, including application in coupled crop disease–weather interaction models.
- Attending to current and impending skill shortages in critical disciplines, including plant pathology and taxonomy, and creating better networking between disciplines and sectors.
- Ensuring the research issues for plant health receive appropriate attention within current European Commission initiatives, for example the Joint Programming Initiative on Agriculture, Food Security and Climate Change and the European Innovation Partnership on Agricultural Productivity and Sustainability.
- Making most of the scientific opportunities for breeding improved plants, durably resistant to biotic stresses. Genetic improvement can be accomplished by more precise breeding techniques (for example, marker-assisted selection), by genetic modification to introduce desirable traits and by other, newer, crop genetic improvement technologies. To deliver these innovations, it is vital that the EU regulatory framework for approving crops developed using genetic improvement technologies is reformed to be proportionate and to focus objectively on the scientific evidence for benefit–risk for the plant trait.
- Implementing coordinated policy for regulation and innovation, encompassing broader thinking on healthy plants and considering options for building strategic linkages across plant–animal–human health ('One Health').

In conclusion, scientific advance is leading to rapid developments in diagnostic technologies, surveillance and communication methodologies, and to increased understanding of the current and emerging threats to plant health, and of the means to counter those threats. The issues to be faced in protecting and promoting plant health are scientific, technological and regulatory but they cannot be tackled successfully without also raising political and public awareness of the importance of the issues and the need to prepare for future challenges. This EASAC report is addressed to the EU institutions, to the Member States and to those responsible for developing regional strategies, to help raise visibility of the global importance of plant health and resilience for sustainable agriculture, food security and environmental protection.

## Innovation

- Assigning higher priority to better use of research advances in support of innovation and the translation of knowledge from research centres to practical applications in support of plant health.
- Developing new, durable control approaches to overcome current limitations of pesticides and responding to challenges introduced by EU pesticide product legislation that reduces the number of approved chemical control options.

## EASAC

EASAC – the European Academies Science Advisory Council – is formed by the national science academies of the EU Member States to enable them to collaborate with each other in providing advice to European policy-makers. It thus provides a means for the collective voice of European science to be heard.

Its mission reflects the view of academies that science is central to many aspects of modern life and that an appreciation of the scientific dimension is a pre-requisite to wise policy-making. This view already underpins the work of many academies at national level. With the growing importance of the European Union as an arena for policy, academies recognise that the scope of their advisory functions needs to extend beyond the national to cover also the European level. Here it is often the case that a trans-European grouping can be more effective than a body from a single country. The academies of Europe have therefore formed EASAC so that they can speak with a common voice with the goal of building science into policy at EU level.

Through EASAC, the academies work together to provide independent, expert, evidence-based advice about the scientific aspects of public policy to those who make or influence policy within the European institutions. Drawing on the memberships and networks of the academies, EASAC accesses the best of European science in carrying out its work. Its views are vigorously independent of commercial or political bias, and it is open and transparent in its processes. EASAC aims to deliver advice that is comprehensible, relevant and timely.

For more information about EASAC and for copies of all our previous publications, please visit our website [www.easac.eu](http://www.easac.eu).