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Spread and pathway modelling to support pest risk assessment under global change

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1831: Spread and pathway modelling to support pest risk assessment under global change

Tuesday, September 27, 2016

02:45 PM - 03:00 PM

Global change processes require vigilance to prevent and manage invasions of plant pests that threaten agricultural production and biodiversity in natural ecosystems. Such changes encompass increasing global trade and travel, and changes in land use, cropping systems and climate. Authorities demand scientifically founded advice from pest risk assessors to support decisions on plant health management, but current risk assessments approaches are qualitative and suffer from ambiguous definitions. Quantification makes assessments more concrete, specific and operational. Pathway models and spread models are novel tools in the practice of pest risk assessment (PRA). A pathway model is a model of the introduction process of a plant pest. It follows the path of infested plant product from the place of production to its destination, and quantifies the fate of the pest on the material during its travel. It calculates the exposure of hosts or host habitat to pest propagules that escape from the transported plant material along the path. A spread model is a model that quantitatively assesses the growth of the pest population in space and time. The assessment of entry and spread using quantitative approaches can enhance the scientific credibility of assessment results, but requires better data, and accumulation of experience in the PRA world. Opportunities and challenges for developing and using pathway models and spread models to support PRA will be illustrated with case studies on forest pests in Europe, conducted with support from the European Commission and the European Food Safety Authority.

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