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Ecologically-based Integrated Pest Management in rapeseed: a need not an option

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Use of neonicotinoid seed treatments against insect pests in arable crops has been banned by the EU. There is widespread resistance of pest populations to the insecticides such as pyrethroids that can be sprayed onto crops. Farmers are running out of options for pest management.

Ecologically-based Integrated Pest Management is now a need - not an option.

Integrated Pest Management is based on the setting of action thresholds, monitoring/risk assessment, prevention and control. It has been around for decades but examples of strategies used in practice in arable systems are few and far between. I will illustrate the development of an ecologically-based IPM strategy using examples from my team's work at Rothamsted on understanding the behavioural ecology of insect pests of oilseed rape - and that of their natural enemies. Action thresholds for most pests of oilseed rape are in place, but I will describe why these are not accurate and argue that dynamic thresholds are needed. By understanding insect immigration and host location processes, we have improved monitoring and risk assessment tools... but I believe the future lies with whole-field real-time detection and I will present some recent research on how we are exploring this possibility. In the absence of pest resistant cultivars, preventative methods which exploit our understanding of host-location processes are starting to be taken seriously by farmers and I will share my sweet-smelling and colourful vision of this future. Lastly, I'll highlight our research into alternatives to synthetic toxicant insecticides, detailing advances in conservation biocontrol methods. Used together, these IPM tools will help to improve the agronomic, economic and environmental sustainability of this important crop