Biological regulations in response to local pesticide use and to the landscape context of fields: preliminary findings from the national SEBIOPAG network

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A major challenge for the future of agriculture is to manage ecological, pest control services with the aim of reducing pesticide use with little or no additional risk to productivity and food security. However, generic findings for in-field and landscape management supporting natural enemy abundance and their impact on various pest groups are still scarce. The resilience of pest control service when pesticide use level gradually decreases is also poorly documented. The national network SEBIOPAG (http://sebiopag.inra.fr) was set up in 2013 to monitor pest control services and their dynamic in 100 fields located in 5 regions of France and selected along gradients of (i) in-field level of pesticide use and (ii) properties of the landscape surrounding the field likely to affect the abundances of pests and natural enemies. Annual data collection includes the measurement of pest control potential (sentinel prey: weed seeds, adult aphids, eggs of Lepidoptera), the census of management practices in the focal field and the description of land use in the $1km^2$ surrounding the focal field for calculation of compositional and configurational properties of the landscape. In this presentation, we introduce the SEBIOPAG network and its associated standard protocols. We then present some preliminary results on the relationships between pest control intensity, levels of pesticide use and the landscape properties of sampled fields using data collected in 2014 and 2015 across the 100 fields.