

O.62 - The CEDRE project: a multidisciplinary evaluation of durable management of plant resistance

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Durable crop management requires producers to limit pesticide use and to preserve the efficacy of control methods. The CEDRE project aimed at proposing strategies for optimal management of plant resistance, taking into account the diversity of farming systems, acceptability, and, regulation measures. We applied a multidisciplinary, socio-economic and biotechnical approach to a set of representative pathosystems. Our aims were: (1) to develop methods to study the costs and benefits of the management strategies, and to develop the instruments which solve the problems of farmers' incentive; (2) to couple a generic model of the effects of farming systems and their spatial organisation on the durability of plant resistances with a training module to optimize the strategies with respect to economic, agronomic and environmental variables; (3) to provide the generic model with, on a set of representative pathosystems, variables describing pathogen dispersal and disease dynamics in time and space, quantitative dynamics of the pathogen populations, the function of damage caused by the pathogen populations to the host, and the efficacy of control means; (4) to collect data in farming situations to validate and to improve the proposed model; involving end-users partners. This last approach will ensure the feasibility of the proposed strategies. Optimal management strategies proposed in this project are expected to be transferred to other pathosystems, taking into account their biological characteristics.