

Ongoing Research Strategies for Sunflower Broomrape Control in Spain

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ABSTRACT

Sunflower broomrape (*Orobanche cumana* Wallr) continues to be one of the most important constraints in sunflower production in Spain. In the last ten years, genetic resistance has been the predominant strategy of control against *O. cumana*. However, the introduction of new resistance is frequently followed by the appearance of new virulent races overcoming that resistance. In this report, a combined strategy to control *O. cumana* is discussed, including: a) The use of IMI sunflower cultivars to control winter and early spring weeds and sunflower broomrape; b) The combination of vertical and horizontal resistance mechanisms in the same genotype in order to develop a more durable resistance, together with molecular studies to identify QTLs associated with broomrape resistance genes to facilitate the pyramiding of different resistance genes and the combination of different resistance mechanisms; c) The study of the variability and racial composition of Spanish sunflower broomrape populations using classical and molecular methods. Key words: Broomrape control, *Helianthus annuus*, resistance mechanisms, IMI sunflower, QTL mapping