

## Nitrogen Effect on Competition Between Winter Cereals and Littleseed Canarygrass

K. Dhima and I. Eleftherohorinos\*,<sup>1</sup>

Field experiments were conducted in northern Greece during 1994, 1995, and 1996 to study the effect of nitrogen fertilization on competition between littleseed canarygrass (*Phalaris minor* Retz.) and wheat (*Triticum aestivum* L.), barley (*Hordeum vulgare* = *distichum* L.) or triticale (*Triticosecale*). The presence of 400 *P. minor* plants per square meter until early March did not have an adverse effect on dry weight of any crop. However, their further presence significantly reduced dry weight of wheat and triticale, but not that of barley. Grain yield of wheat and triticale was reduced 48% and 47%, respectively, by season-long competition of *P. minor*, whereas the corresponding reduction for barley was only 8%. Crop yield reduction due to *P. minor* competition resulted mainly from reduction in ear number and less from reduction in 1000-grain weight. Nitrogen fertilization (150 kg N ha<sup>-1</sup>), compared with control (0 kg N), slightly increased yield of all crops grown without weed competition. The same treatment also increased dry weight and competitive ability of *P. minor* against wheat and triticale, compared with that of control (0 kg N); the split application of nitrogen (50 kg N ha<sup>-1</sup> before crop sowing and 100 kg N ha<sup>-1</sup> in early March) caused a slightly greater increase in *P. minor* dry weight than did 150 kg N ha<sup>-1</sup> applied once before crop sowing. Dry weight of *P. minor* grown with barley was not affected by nitrogen fertilization, but it was severely reduced compared with that of *P. minor* grown with wheat or triticale.

KEY WORDS: Competition; N-fertilization; *Phalaris minor*; winter cereals.

---

Received Aug. 8, 2002; received in final form Jan. 11, 2003; <http://www.phytoparasitica.org> posting April 21, 2003.

<sup>1</sup>Laboratory of Agronomy, University of Thessaloniki, Thessaloniki 541 24, Greece. \*Corresponding author [Fax: +30-2310-998634; e-mail: [eleftero@agro.auth.gr](mailto:eleftero@agro.auth.gr)].