

## Effect of Different Methods to Control the Parasitic Weed *Phelipanche ramosa* (L. Pomel) in Tomato Crop

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**Abstract :** The *Phelipanche ramosa* is considered the most damaging obligate flowering parasitic weed on a wide species of cultivated plants. The semiarid regions of the world are considered the main center of this parasitic weed, where heavy infestation are due to the ability to produce high numbers of seeds (up to 200,000), that remain viable for extended period (more than 19 years). In this paper 13 treatments of parasitic weed control, as physical, chemical, biological and agronomic methods, including the use of the resistant plants, have been carried out. In 2014 a trial was performed on processing tomato (cv Docet), grown in pots filled with soil taken from a plot heavily infested by *Phelipanche ramosa*, at the Department of Agriculture, Food and Environment, University of Foggia (southern Italy). Tomato seedlings were transplanted on August 8, 2014 on a clay soil (USDA) 100 kg ha<sup>-1</sup> of N; 60 kg ha<sup>-1</sup> of P<sub>2</sub>O<sub>5</sub> and 20 kg ha<sup>-1</sup> of S. Afterwards, top dressing was performed with 70 kg ha<sup>-1</sup> of N. The randomized block design with 3 replicates was adopted. During the growing cycle of the tomato, at 70-75-81 and 88 days after transplantation the number of parasitic shoots emerged in each pot was detected. Also values of leaf chlorophyll Meter SPAD of tomato plants were measured. All data were subjected to analysis of variance (ANOVA) using the JMP software (SAS Institute Inc., Cary, NC, USA), and for comparison of means was used Tukey's test. The results show lower values of the color index SPAD in tomato plants parasitized compared to those healthy. In addition, each treatment studied did not provide complete control against *Phelipanche ramosa*. However the virulence of the attacks was mitigated by some treatments: radicon product, compost activated with *Fusarium*, mineral fertilizer nitrogen, sulfur, enzone and resistant tomato genotype. It is assumed that these effects can be improved by combining some of these treatments each other, especially for a gradual and continuing reduction of the "seed bank" of the parasite in the soil.

**Keywords :** control methods, *Phelipanche ramosa*, tomato crop

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