EUROPEAN WEED RESEARCH SOCIETY

Joint workshop of the EWRS working groups

Weed management in arid and semi-arid climate

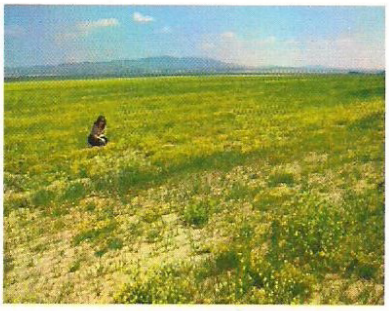
and

Weed management systems in vegetables







Huesca, Spain

4 – 8 September 2011

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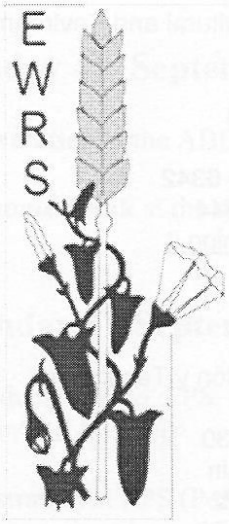

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Abstracts

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Integrated weed management systems in vegetables in the Mediterranean area

E. Pannacci[1] and F.Tei[1]
[1]Dept. of Environmental and Agricultural Sciences, Faculty of Agriculture, University of Perugia, 06121 Perugia, IT, Email: pannacci@unipg.it

Most vegetable crops are characterised by a low plant density, a wide row distance, a slow initial growth and, as a consequence, by a poor competitive ability. Taking into consideration that most vegetables are high-income crops, the threshold weed densities are very low and the critical periods of weed competition are pretty long. Most vegetables are minor crops, thus the availability of approved herbicides for use is scarce due to the low economic interest by the chemical industries. Chemical weed control in vegetables shows peculiar environmental and health concerns due to the relatively short growth cycle, fresh edible parts of vegetables, and a coarse soil texture found in the main production areas; moreover, a repeated use of herbicides with similar mode of action may lead to a strong and quick selection of weed flora. So an Integrated Weed Management System (IWMS) in vegetables should be based on: 1) weed population management strategies by sound preventive cultural weed control methods; 2) an integration of non-chemical and chemical weed control methods characterised by a low selection pressure on weed communities, an environmental sustainability and an economic feasibility. Regarding preventive (indirect) weed control methods, crop rotation, cover crops, allelopathy, a stale seedbed preparation, the breeding of competitive cultivars and the transplanting instead of the direct sowing seem to be the most effective even if some of them should be better studied. Regarding curative (direct) weed control methods, non-degradable black PE, non-degradable photo-selective coloured plastic mulches, starch-based biodegradable mulches, inter-row cultivation (i.e. hoeing, harrowing, brushing) and intra-row cultivation (i.e. finger weeder, torsion weeder, split hoe, steering hoe) are widely used in organic farming systems and in conventional systems where the availability of approved herbicides for use is scarce. At present, biological control does not seem to be applicable on large scale and successfully in European vegetable crops systems characterised by small fields, a high number of crop species, and pluri-specific weed infestations. Chemical control is still the main weed control method in conventional and low input vegetable production systems, even if concerns about food safety, environmental sustainability, weed population dynamics and application cost are increasing among public opinion and technicians, particularly because the global market shows a huge variability in crop management and regulatory decisions on pesticides.

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