Weeds and weed management in peppers

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Objective

Information about key weeds, new weeds or species that have recently become problematic, effect of competition, weed management programmes in integrated and organic production, approved herbicides and those currently undergoing registration for use in in sweet and hot peppers grown in Italy (I), Poland (PL), Portugal (P), Spain (E) was collected.

Peppers in surveyed countries

Country	ha
Spain	19000
Italy	11000
Poland	2500
Portugal	250

The majority of the crop is transplanted. In Spain, direct seeding was studied and the results transferred to farmers but this technique has not been adopted. The season of planting is late spring (April and May). Single-row distance is 0.80 to 1.00 m, while double-row distance is 1.20 to 1.50 m, with a planting density of 3-4 plants m-2, depending on cultivars.

Weeds

Key weeds

The weed communities are commonly very rich of species and their composition is highly variable in relation to climate, soil, crop rotation and crop period. The most important and frequent species are: *Cyperus rotundus, Datura stramonium, Xanthium strumarium, Portulaca oleracea, Solanum nigrum, Sonchus oleraceus, Picris echioides, Chenopodium album, Amaranthus* spp., *Polygonum* spp., *Convolvulus arvensis, Setaria verticillata, Digitaria sanguinalis, Setaria glauca, Echinochloa crus-galli, E. colona, Sorghum halepense*. However, *Cyperus rotundus, Solanum nigrum, Sorghum halepense, Amaranthus* spp. *Echinochloa crus- galli, Chenopodium album, Galinsoga* spp. may also be key weeds in the surveyed countries.

Weeds are becoming important

Diplotaxis erucoides and *Malva sylvestris* in E.
Ambrosia artemisifolia and *Amaranthus hybridus* in I.
Galinsoga spp. in PL.

Weed competition

Peppers suffer severe weed competition due to low initial growth rates. The critical period for weed control in transplanted crops was about from 25 to 45 days after planting. Polyethylene mulching and drip irrigation is generally used to avoid weeds and to optimize irrigation. Localised irrigation instead of sprinkler irrigation and fertigation instead of broadcast fertilisation can also help to reduce weed emergence and competition.

Approved active ingredients

glyphosate (E, I, PL, P)
pendimethalin (E, I, P)
oxadiazon (I)
napropamide (E)
clomazone (E, I)
graminicides (E, I)

Conventional weed control

Conventional weed control is based on herbicides application. However, mechanical weed control (hoeing) is often used to compensate for poor herbicide efficacy.

Integrated Weed Management System

1. false seedbed technique followed by shallow harrowing or by glyphosate application
2. transplanting
3. pre-transplanting herbicide application or black plastic mulching
4. post-transplanting inter-row hoeing

Organic production

1. false seedbed technique followed by shallow harrowing
2. transplanting
3. inter- and intra-row cultivation (i.e. hoeing, split-hoeing and/or finger weeding) through the growing season or starch-based biodegradable mulching
4. hand-weeding