



Weeds and weed management in cabbages - a review

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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 cabbages (headed cabbages, savoy cabbage, cauliflower, broccoli, Brussels sprouts and chinese cabbage) grown under field conditions in Croatia (HR), Finland (FIN), Germany (D), Hungary (H), Italy (I), The Netherlands (NL), Poland (PL), Portugal (P), Slovenia (SLO), Spain (E), Switzerland (CH) and United Kingdom (UK) was collected.

Cabbages in surveyed countries

Country	ha
Poland	47000
Italy	37000
Spain	34000
United Kingdom	33000
Germany	19370
Croatia	11000
The Netherlands	10800
Portugal	8500
Hungary	6200
Finland	1320
Slovenia	1000
Switzerland	500



Weeds

Most important and frequent species

Spring-summer crops

Digitaria spp., *Echinochloa crus-galli*, *Elymus repens*, *Setaria* spp., *Amaranthus* spp., *Chenopodium* spp., *Datura stramonium*, *Mercurialis annua*, *Polygonum* spp., *Portulaca oleracea*, *Solanum nigrum*.

Autumn-winter crops

Stellaria media, *Cirsium arvense*, *Matricaria* spp., *Senecio vulgaris*, *Sonchus* spp., *Fumaria officinalis* and *Cruciferae* species.

Key weeds

Species	FIN	H	I	NL	PL	P	E	CH	UK
<i>Alopecurus myosuroides</i>			+						
<i>Chenopodium</i> spp.		+	+		+			+	
<i>Cruciferae</i> species	+	+					+		+
<i>Cyperus</i> spp.						+	+		
<i>Galinsoga parviflora</i>		+	+		+			+	
<i>Galium aparine</i>									+
<i>Lolium</i> spp.			+						
<i>Portulaca oleracea</i>							+		
<i>Papaver rhoeas</i>			+						
<i>Rumex</i> spp.						+			
<i>Sonchus</i> spp.								+	
<i>Urtica urens</i>				+					+
<i>Veronica</i> spp.		+							

Weeds are becoming important

Chenopodium album and *Polygonum* spp. in FIN.

Urtica urens in NL.

Ambrosia artemisiifolia in H.

Rorippa sylvestris in CH.

Abutilon theophrasti, *Panicum* spp., *Setaria viridis*, *Xanthium strumarium* in HR.

Amaranthus spp., *Cirsium arvense*, *Convolvulus arvensis*, *Cruciferae* in SLO.

Chenopodium album, *Cuscuta* spp., *Galinsoga parviflora* in P.

Calystegia sepium, *Rumex* spp., *Sorghum halepense* in I.

Approved “key” active ingredients

Active Ingredients	Application time	HR	FIN	D	H	I	NL	PL	P	SLO	E	CH	UK
trifluralin	pre	+		+	+	+		+	+		+	+	+
napropamide	pre	+	+			+		+		+		+	
oxyfluorfen	pre	+				+		+	+				
pendimethalin	pre	+		+	+	+		+		+	+		
metazachlor	pre / post	+	+	+	+	+	+	+		+	+	+	+
propachlor	pre / post					+		+			+	+	+
pyridate	post		+	+						+	+		+
clopyralid	post		+			+		+					+
graminicides	post	+	+	+	+	+	+	+	+	+	+	+	+

* under registration

Conventional weed control

pre-emergence / pre-transplanting treatment

+ 1-2 post-emergence / post-transplanting treatments

(Pictures from A. Dobrzanski, Poland)



A weedy check



Pre-transplanting pendimethalin



Pre-transplanting oxyfluorfen + Post-transplanting metazachlor

Galinsoga parviflora in broccoli



Inter-row cultivation



Cabbage planted in cover crop



Integrated Weed Management System

- 1) false seedbed technique followed by shallow harrowings or by glyphosate or glufosinate-ammonium application
- 2) pre-emergence or pre-transplanting herbicide application
- 3) post-emergence inter-row hoeing or rotary cultivation combined with ridging for in-row weed control

Both in conventional and IWMS, very early head cabbages and cauliflower can be grown in the open field under perforated polyethylene plastic flat cover or non-woven polypropylene to improve crop earliness and to control insects.

Organic production

- 1) false seedbed technique followed by shallow harrowing
- 2) transplanting
- 3) repeated inter- and intra-row cultivation through the growing season sometime combined with ridging
- 4) hand-weeding

Some growers also flame weeds under the cabbage leaves when the crop plants are big enough. False seedbed for early cabbage production or for very late varieties seems not feasible. In organic growing of cabbages the use of plastic covers is more common than in conventional and IWM systems but it stimulates weed emergence and growth and costs are high because it must be removed before each mechanical weed control. In Spain black plastic mulching combined with drip irrigation is widely used in summer crops.