

## **Containment measures for genetically modified plants under contained use**

**Status November 2018 (CGM/181122-04)**



# **Amendment of list with containment measures for activities involving the contained use of GM plant species 2018**

## **COGEM advice CGM/181122-04**

### **1. Introduction**

When activities are carried out with genetically modified (GM) plants under contained use, it must be prevented that introduced sequences are dispersed in the environment. A number of general measures have been drawn up for this purpose.<sup>1</sup> The space in which work is done with the GM plants, for example, must meet certain conditions and any waste which contains plant reproductive parts must be made inactive. Based on the characteristics of a plant species it is also laid down whether other containment measures in addition to the general containment measures are necessary to prevent the distribution of the sequences. This means checking whether the species is present in the Netherlands or if it could establish itself here. It must also be considered whether related species are present in the Netherlands that the species could hybridise with. If this is the case, additional measures will often be necessary to prevent the dispersal of the introduced sequences through seed, pollen or plant reproductive parts. In determining the necessary containment measures it is assumed that the activities are with plants which have been modified with sequences that do not code for any 'hazardous gene products'.<sup>a</sup> For plants which have been modified with sequences which encode hazardous gene products, a case-by-case assessment will have to be made to determine whether or not additional containment measures are necessary.

Annex 7 to the Netherlands' Genetically Modified Organisms Regulation 2013 includes a list of plant species, the characteristics of these plant species and any additional containment measures which should be taken when working with these species if they have been modified with sequences that do not encode 'hazardous gene products'.<sup>2</sup> This list is based on previous COGEM reports, which contain information on the appropriate containment measures for many plant species and genera. In 2016, COGEM published an amended list of containment measures for activities involving the contained use of plants, and additionally concluded that containment measures should be prescribed per species, and not per genus.<sup>3</sup> Containment measures prescribed for genera are undesirable, as species can switch between genera, resulting in changes in containment measures that may not be suitable to the characteristics of the new species.

COGEM initiated a research project to take stock of which species belong to the 40 genera that are mentioned in Annex 7 to the Netherlands GMO Regulation. The current advice contains an amended

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<sup>a</sup> According to the definition in the Netherlands' Genetically Modified Organisms Regulation a 'hazardous gene product' is a gene product that may potentially have a toxic, carcinogenic, allergenic, pathogenic or immune-modulating property or a gene product that could help to spread introduced genetic material, or which could lead to an antibiotic resistance that could threaten the use of medicines administered to treat infectious diseases.

In addition, COGEM considers gene products that could increase the fitness of an organism also to be 'hazardous gene products'.

list (Table 1.) in which genera have been crossed out. For 15 genera, the genus name has been replaced by species (belonging to those genera) that are being used in GM plant research in the Netherlands. A total of 131 relevant species have now been added to the list.

Additionally, some species that were previously mentioned on the containment list have undergone changes in containment measures. These species are *Vitis vinifera*, *Rorippa amphibia*, (syn. *Nasturtium amphibium*), *Rorippa islandica*, *Rorippa palustris*, *Rorippa sylvestris* (syn. *Nasturtium sylvestre*), and *Cleome spinosa*. Furthermore, the species designation *Solanum americanum* (syn. *Solanum nigrum*) has been substituted by *S. nigrum*.

Finally, nine new species and their containment measures derived from recent COGEM advices have been added to the containment list: *Asparagus officinalis*<sup>4</sup>, *Aethionema arabicum*<sup>5</sup>, *Cardamine flexuosa*<sup>6</sup>, *Cardamine hirsuta*<sup>6</sup>, *Cleome gynandra*<sup>5</sup>, *Tagetes erecta*<sup>7</sup>, *Tagetes patula*<sup>7</sup>, *Hirschfeldia incana*<sup>8</sup>, *Schrenkiella parvula*<sup>9</sup>.

**Table 1. List of additional containment measures for activities involving GM vascular plants under ‘contained use’**

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
Alstroemeriaceae	<i>Alstroemeria</i> spp.	I/B	G/F	-	+	No		No relevant species identified.
Amaranthaceae	<i>Beta vulgaris</i>	W/I	W	+	+	No		
	<i>Spinacia oleracea</i>	W	W	+	+	No		
Amaryllidaceae	<i>Allium ampeloprasum</i> (syn. <i>Allium porrum</i> )	I	W	-	+	Yes	Wind dispersal: seeds are 'ejected' by plant.	
	<i>Allium cepa</i>	I	W	-	+	Yes	Wind dispersal: seeds are 'ejected' by plant.	
	<i>Allium sativum</i>	I	F (sterile)	-	-	No		
	<i>Narcissus</i> spp.	I	W	-	+	No		No relevant species identified.
Apiaceae	<i>Anthriscus sylvestris</i>	I	W	-	+	No		
	<i>Carum</i> spp.	I	W	-	+	No		No relevant species identified.
	<i>Daucus carota</i>	I	W	-	+	Yes	Fruit has hooked thorns, small seeds.	
Apocynaceae	<i>Catharanthus roseus</i>	*	-	-	-	No		
	<i>Tabernaemontana pandacqui</i>	*	-	-	-	No		
Araceae	<i>Anthurium andraeanum</i>	I	-	-	-	No		
	<i>Dieffenbachia</i> spp.	I	-	-	-	No		No relevant species identified
	<i>Lemna gibba</i>	SP/I/W	W	+	+	Yes	Duckweed: small seeds and (floating) reproductive plant structures (turions).	
	<i>Lemna minor</i>	SP/I/W	W	+	+	Yes	Duckweed: small seeds and (floating) reproductive plant structures (turions).	

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	<i>Spirodela polyrhiza</i>	SP/I/W	W	+	+	Yes	Duckweed: small seeds and (floating) reproductive plant structures.	
	<i>Spirodela punctata</i> (syn. <i>Landoltia punctata</i> )	SP/I/W	W	+	+	Yes	Duckweed: small seeds and (floating) reproductive plant structures.	
	<i>Wolffia globosa</i>	SP/I/W	- (wild relatives)	+	+	Yes	Duckweed: small seeds and (floating) reproductive plant structures.	
	<i>Zantedeschia</i> spp.	I	G/F	-	+	No		No relevant species identified
Araliaceae	<i>Schefflera</i> spp.	I	-	-	-	No		No relevant species identified
Asparagaceae	<i>Asparagus officinalis</i>	I/(SP)	W/F	-	+ (for male plants only)	Yes	Vegetative reproduction possible through rhizomes.	Species from recent COGEM advice. (CGM/160912-01) <sup>4</sup>
	<i>Hosta</i> spp.	I	W	-	+	No		No relevant species identified
	<i>Hyacinthoides</i> spp.	I	W	-	+	No		No relevant species identified
	<i>Hyacinthus orientalis</i>	I	W	-	+	No		
Balsaminaceae	<i>Impatiens</i> spp.	I	W	-	+	Yes	Fruit ejects the seeds.	No relevant species identified
Begoniaceae	<i>Begonia grandis</i>	I	G	-	+	Yes	Small seeds.	
	<i>Begonia</i> spp. (met uitzondering van <i>B. grandis</i> )	I	G	-	+	No		No relevant species identified
Brassicaceae	<i>Aethionema arabicum</i>	SP/(I)	-	-	-	Yes	Sticky seed with protrusions after imbibition.	Species from recent COGEM advice. (CGM/170419-01) <sup>5</sup>
	<i>Arabidopsis thaliana</i>	SP/I	W	-	+	Yes	Small seeds.	

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	<i>Boechera holboellii</i> (syn. <i>Arabis holboellii</i> )	A/SP/I	-	-	-	Yes	Pod that springs open with small seeds.	
	<i>Boechera stricta</i> (syn. <i>Arabis drummondii</i> )	A/SP/I	-	-	-	Yes	Pod that springs open with small seeds.	
	<i>Brassica</i> spp.	SP/I	W	-	+	Yes	Small seeds, ejected when in contact with ripe fruit.	Three species identified
	<i>Brassica napus</i>	SP/I/W	W	+	+	Yes	Small seeds, ejected when in contact with ripe fruit. Asynchronous seed maturation.	Identified species. <i>B. napus</i> is self-compatible and has a self to cross-pollination ratio of 70:30. <sup>10</sup> <i>B. napus</i> is pollinated by insects, but there are indications that wind pollination is also possible. <sup>11</sup> Containment measures to prevent insect and wind pollination are necessary. <i>B. napa</i> produces small seeds, which can be ejected. Containment measures to prevent seed dispersal are therefore also necessary.
	<i>Brassica oleracea</i>	I/W	W	+	+	Yes	Small seeds, ejected when in contact with ripe fruit. Asynchronous seed maturation.	Identified species. <i>B. oleracea</i> is pollinated by insects. Wind pollination cannot be excluded for this species. Containment measures to prevent insect and wind pollination are necessary. <i>B. oleracea</i> produces small seeds, which can be ejected. Containment measures to prevent seed dispersal are therefore also necessary.
	<i>Brassica rapa</i>	I/W	W	+	+	Yes	Small seeds, ejected when in contact with ripe fruit. Asynchronous seed maturation.	Identified species. <i>B. rapa</i> is pollinated by insects. Wind pollination cannot be excluded for this species. Containment measures to prevent insect and wind pollination are necessary. <i>B. rapa</i> produces small seeds, which can be ejected. Containment measures to prevent seed dispersal are therefore also necessary.
	<i>Camelina sativa</i>	SP/I	W	-	+	Yes	Small seeds that are ejected.	

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	<i>Cardamine flexuosa</i>	SP/I	W	-	+	Yes	Capsules eject seed.	Species from recent COGEM advice. (CGM/170316-02) <sup>6</sup>
	<i>Cardamine hirsuta</i>	SP/I	W	-	+	Yes	Capsules eject seed.	Species from recent COGEM advice. (CGM/170316-02) <sup>6</sup>
	<i>Crambe hispanica</i> subsp. <i>abyssinica</i> (syn. <i>Crambe abyssinica</i> )	SP/I	W	-	+	No		
	<i>Diplotaxis tenuifolia</i>	I/W	W	+	+	Yes	Fruit can burst open to allow seeds to drop onto the ground.	
	<i>Draba alyssoides</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba aretioides</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba fladnizensis</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba hookeri</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba lactea</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba muralis</i>	SP/I	W	-	+	Yes	Seeds held in capsule that springs open.	
	<i>Draba nivalis</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba steyermarkii</i>	SP/I	- (wild relatives)	-	+	No		
	<i>Draba subcapitata</i>	SP/I	- (wild relatives)	-	+	No		



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	<i>Erophila verna</i> (syn. <i>Draba verna</i> )	SP/I	W	-	+	Yes	Small seeds.	
	<i>Eutrema halophilum</i> (syn. <i>Thellungiella halophila</i> )	SP/I	-	-	-	Yes	Small seeds.	
	<i>Hirschfeldia incana</i>	I/SP	W	-	+	Yes	Small, sticky and lightweight seeds in capsule that springs open.	Species from recent COGEM advice. (CGM/180430-03) <sup>8</sup>
	<i>Raphanus raphanistrum</i> subsp. <i>sativus</i> (syn. <i>Raphanus sativus</i> )	SP/I	W	-	+	No		
	<i>Rorippa amphibia</i> (syn. <i>Nasturtium amphibium</i> )	I	W	-	+	Yes	Small seeds in silique which can burst open. Clonal distribution through rhizomes needs to be prevented.	<i>R. amphibia</i> is primarily distributed by means of rhizomes <sup>12,13</sup> and produces seeds in silique, which burst open easily. Containment measures to prevent seed distribution and clonal distribution through rhizomes are necessary.
	<i>Rorippa islandica</i>	SP/I	-	-	+	Yes	Small seeds in silique which can burst open.	Produces seeds in silique, which burst open easily. Containment measures to prevent seed distribution are necessary because of cross compatibility with related native species.
	<i>Rorippa palustris</i>	SP/I	W	-	+	Yes	Small seeds in silique which can burst open.	Produces seeds in silique, which burst open easily. Containment measures to prevent seed distribution are therefore necessary.
	<i>Rorippa sylvestris</i> (syn. <i>Nasturtium sylvestre</i> )	I	W	-	+	Yes	Small seeds in silique which can burst open. Clonal distribution through rhizomes needs to be prevented.	<i>R. sylvestris</i> is primarily distributed by means of rhizomes <sup>14</sup> and produces seeds in silique, which burst open easily. Containment measures to prevent seed distribution and clonal distribution through rhizomes are necessary.
	<i>Schrenkiella parvula</i> (syn. <i>Thellungiella parvula</i> , <i>Eutrema parvulum</i> )	SP/I	-	-	-	Yes	Small seeds.	Species from recent COGEM advice. (CGM/180627-01) <sup>9</sup>

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	<i>Sinapis</i> spp.	SP/I	W	-	+	Yes	Small seeds, ejected when in contact with ripe fruit.	No relevant species identified
	<i>Thlaspi caerulescens</i>	SP/I	W	-	+	No		
Cannabaceae	<i>Cannabis sativa</i>	W/I	W	+ (for male inflorescences only)	+ (for male inflorescences only)	No		
	<i>Parasponia andersonii</i>	W/I	-	-	-	No		
	<i>Trema orientalis</i>	SP/I/W	-	-	-	No		
	<i>Trema tomentosa</i>	SP/I/W	-	-	-	No		
Caryophyllaceae	<i>Dianthus</i> spp.	I	W	-	+	No		One species identified
	<i>Dianthus caryophyllus</i>	I	G/F	-	-	No		Identified species. <i>D. caryophyllus</i> can be planted in gardens in the Netherlands, and is reasonably hardy. This species is pollinated by butterflies. <sup>15</sup> Crosses between <i>D. caryophyllus</i> and native <i>Dianthus</i> species have never been observed in the wild. Containment measures to prevent insect pollination are therefore not necessary.
	<i>Gypsophila paniculata</i>	I	W	-	+	No		
Cleomaceae	<i>Cleome gynandra</i>	SP/I/W	-	-	-	No		Species from recent COGEM advice. (CGM/170419-01) <sup>5</sup>
	<i>Cleome spinosa</i>	SP/I	G	-	-	No		
Compositae	<i>Artemisia</i> spp.	W/SP	W	+	+	Yes	Small seeds.	No relevant species identified
	<i>Bidens ferulifolia</i>	I	G	-	+	No		
	'Brachyscome melanophora'	I	G	-	+	No		
	'Brachyscome multiflora'	I	G	-	+	No		

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	<i>Chrysanthemum</i> × <i>morifolium</i> (syn. <i>Dendranthema</i> × <i>grandiflora</i> )	*	-	-	-	No		
	<i>Cichorium</i> spp.	I/SP	W	-	+	No		Two species identified
	<i>Cichorium endivia</i>	I/SP	W	-	+	No		Identified species. <i>C. endivia</i> is a native species. It can be self-pollinated, or pollinated by insects. Containment measures to prevent insect pollination are necessary.
	<i>Cichorium intybus</i>	I	W	-	+	No		Identified species. <i>C. intybus</i> is a native species and can be pollinated by insects. Containment measures to prevent insect pollination are necessary.
	<i>Gerbera jamesonii</i>	*	-	-	-	No		
	<i>Helianthus annuus</i>	SP/I	F	-	+	No		
	<i>Jacobaea vulgaris</i> subsp. <i>vulgaris</i>	I	W	-	+	Yes	Seeds with pappus.	
	<i>Jacobaea vulgaris</i> subsp. <i>dunensis</i>	I	W	-	+	Yes	Seeds with pappus.	
	<i>Lactuca</i> spp.	I/SP	W	-	+	Yes	Seeds with pappus.	Three species identified
	<i>Lactuca saligna</i>	I	- (extinct native species)	-	+	Yes	Seeds with pappus.	Identified species. <i>L. saligna</i> is a native species, but is currently extinct in the Netherlands. <sup>16</sup> <i>L. saligna</i> is pollinated by insects and can hybridise with other native species of <i>Lactuca</i> . Containment measures to prevent insect pollination are therefore necessary. <i>L. saligna</i> produces seeds with pappus, hence containment measures to prevent seed dispersal are necessary.
	<i>Lactuca sativa</i>	I/SP	W	-	+	Yes	Seeds with pappus.	Identified species. <i>L. sativa</i> is a native species and is pollinated by insects. Containment measures to prevent insect

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								pollination are necessary. <i>L. sativa</i> produces seeds with pappus, hence containment measures to prevent seed dispersal are necessary.
	<i>Lactuca serriola</i>	<i>I</i>	<i>W</i>	-	+	Yes	Seeds with pappus.	Identified species. <i>L. serriola</i> is the most common native <i>Lactuca</i> species in the Netherlands. <i>L. serriola</i> is pollinated by insects. Containment measures to prevent insect pollination are necessary. <i>L. serriola</i> produces seeds with pappus, hence containment measures to prevent seed dispersal are necessary.
	<i>Pilosella caespitosa</i> (syn. <i>Hieracium caespitosum</i> )	<i>SP/I</i>	<i>W</i>	-	+	Yes	Seeds with pappus.	
	‘Sanvitalia speciosa’	<i>I</i>	<i>G</i>	-	+	No		
	‘Solidago hybride’	<i>I</i>	<i>G</i>	-	+	Yes	Small wind-dispersed seeds.	
	<i>Tagetes erecta</i>	<i>I/SP</i>	<i>F/G</i>	-	+	Yes	Achenes with hooks.	Species from recent COGEM advice. (CGM/161107-01) <sup>7</sup>
	<i>Tagetes patula</i>	<i>I/SP</i>	<i>F/G</i>	-	+	Yes	Achenes with hooks.	Species from recent COGEM advice. (CGM/161107-01) <sup>7</sup>
	<i>Tanacetum cinerariifolium</i>	<i>I</i>	<i>G</i>	-	+	Yes	Loose seeds.	
	<i>Taraxacum campylodes</i> (syn. <i>Taraxacum officinale</i> )	<i>I/A</i>	<i>W</i>	-	+	Yes	Seeds with pappus.	
	<i>Taraxacum kok-saghyz</i>	<i>I/SP/W</i>	- (wild relatives)	-	+	Yes	Seeds with pappus.	
Crassulaceae	<i>Kalanchoe blossfeldiana</i>	<i>SP/I/(B)</i>	-	-	-	No		

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Cucurbitaceae	<i>Citrullus lanatus</i> (syn. <i>Citrullus vulgaris</i> )	I	G	-	+ (for male inflorescences only)	No		
	<i>Cucumis</i> spp.	I	W	-	+ (for male inflorescences only)	No		Two species identified.
	<i>Cucumis melo</i>	I	W	-	+ (for male inflorescences only)	No		Identified species. <i>C. melo</i> is monoecious, and is an adventive species in the Netherlands. <i>C. melo</i> can also be cultivated in vegetable gardens, and is pollinated by insects. <sup>17</sup> Containment measures to prevent insect pollination are only required for male inflorescences.
	<i>Cucumis sativus</i>	I	W	-	+ (for male inflorescences only)	No		Identified species. <i>C. sativus</i> is monoecious, but some cultivars have predominantly female inflorescences (gynoecey). <sup>18</sup> <i>C. sativus</i> is an adventive species in the Netherlands, and can also be cultivated in vegetable gardens. <i>C. sativus</i> is pollinated by insects. Containment measures to prevent insect pollination are only required for male inflorescences.
	<i>Cucurbita</i> spp.	I	W	-	+ (for male inflorescences only)	No		One species identified.
	<i>Cucurbita pepo</i>	I	W	-	+ (for male inflorescences only)	No		Identified species. <i>C. pepo</i> is monoecious, and is an adventive species in the Netherlands. <i>C. pepo</i> can also be cultivated in vegetable gardens, and is pollinated by insects. Containment measures to prevent insect pollination are only required for male inflorescences.
	<i>Momordica balsamina</i>	I	-	-	-	No		

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	<i>Momordica charantia</i>	<i>I</i>	-	-	-	No		
	<i>Momordica cochinchinensis</i>	<i>I</i>	-	-	-	No		
Droseraceae	<del><i>Drosera</i> spp.</del>	<i>I</i>	<i>W</i>	-	+	Yes	Small seeds.	No relevant species identified
Euphorbiaceae	<i>Jatropha curcas</i>	<i>I</i>	-	-	-	No		
	<i>Manihot esculenta</i>	*	-	-	-	No		
Fagaceae	<i>Quercus robur</i>	<i>W/I</i>	<i>W</i>	+	+	No		
Geraniaceae	<i>Geranium pyrenaicum</i>	<i>I/SP</i>	<i>W</i>	-	+	Yes	Achenes that can be ejected away from plant.	
	<i>Geranium robertianum</i>	<i>I/SP</i>	<i>W</i>	-	+	Yes	Achenes with fibrous threads that can be ejected.	
	<del><i>Pelargonium</i> spp.</del>	<i>I</i>	<i>G</i>	-	+	No		No relevant species identified
Gesneriaceae	<i>Saintpaulia ionantha</i>	*	-	-	-	No		
Goodeniaceae	<i>Scaevola aemula</i>	<i>I</i>	<i>G</i>	-	+	No		
Hydrangeaceae	<i>Hydrangea macrophylla</i>	<i>I</i>	<i>W</i>	-	+	No		
Hypericaceae	<del><i>Hypericum</i> spp.</del>	<i>I/SP</i>	<i>W</i>	-	+	Yes	Small seeds.	No relevant species identified
Iridaceae	<del><i>Freesia</i> spp.</del>	*	-	-	-	No		No relevant species identified
	<del><i>Gladiolus</i> spp.</del>	<i>I</i>	<i>F</i>	-	+	No		No relevant species identified
	<del><i>Iris</i> spp.</del>	<i>I</i>	<i>W</i>	-	+	No		No relevant species identified
Lamiaceae	<del><i>Lavandula</i> spp.</del>	<i>I</i>	<i>W</i>	-	+	No		No relevant species identified
	<del><i>Mentha</i> spp.</del>	<i>I</i>	<i>W</i>	-	+	Yes	Small seeds.	No relevant species identified
	<i>Scutellaria baicalensis</i>	<i>I</i>	<i>G</i>	-	+	No		
Leguminosae	<i>Glycine max</i>	<i>SP/I</i>	<i>F/W</i>	-	-	No		
	<i>Lotus corniculatus</i> (syn. <i>Lotus japonicus</i> )	<i>I</i>	<i>W</i>	-	+	Yes	Pod ejects seeds when ripe.	

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Medicago truncatula</i>	SP/I	- (No sexually compatible relatives)	-	-	No		
	<i>Medicago x varia</i>	I	W	-	+	No		
	<i>Phaseolus</i> spp.	SP/I	W	-	+	No		One species identified
	<i>Phaseolus vulgaris</i>	I	W	-	+	No		Identified species. <i>P. vulgaris</i> is cultivated in the Netherlands. <i>P. vulgaris</i> is pollinated by insects. Containment measures to prevent insect pollination are necessary.
	<i>Pisum sativum</i>	SP/I	W	-	+	No		
	<i>Trifolium repens</i>	I	W	-	+	Yes	Small seeds.	
	<i>Vicia faba</i>	SP/I	W	-	+	No		
	<i>Vicia hirsuta</i>	I	W	-	+	Yes	Pod ejects seeds when ripe.	
	<i>Vigna unguiculata</i>	SP/I	G	-	+	No		
Liliaceae	<i>Lilium</i> spp.	I	W/F	-	+	No		Eight species identified
	<i>Lilium auratum</i>	I	F	-	-	No		Identified species. <i>L. auratum</i> is pollinated by insects. Only <i>Lilium bulbiferum</i> is a native species. It is unlikely that <i>L. auratum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Lilium brownii</i>	<i>I</i>	<i>F</i>	-	-	No		Identified species. <i>L. brownii</i> is pollinated by insects. It is unlikely that <i>L. brownii</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
	<i>Lilium japonicum</i>	<i>I</i>	<i>F</i>	-	-	No		Identified species. <i>L. japonicum</i> is pollinated by insects. It is unlikely that <i>L. japonicum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
	<i>Lilium longiflorum</i>	<i>I</i>	<i>F</i>	-	-	No		Identified species <i>L. loniflorum</i> is pollinated by insects. It is unlikely that <i>L. loniflorum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.



Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Lilium nobilissimum</i>	<i>I</i>	<i>F</i>	-	-	No		Identified species. <i>L. nobilissimum</i> is pollinated by insects. It is unlikely that <i>L. nobilissimum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
	<i>Lilium platyphyllum</i> (= <i>Lilium auratum</i> var. <i>platyphyllum</i> )	<i>I</i>	<i>F</i>	-	-	No		Identified species. <i>L. platyphyllum</i> is pollinated by insects. It is unlikely that <i>L. platyphyllum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
	<i>Lilium rubellum</i>	<i>I</i>	<i>F</i>	-	-	No		Identified species. <i>L. rubellum</i> is pollinated by insects. It is unlikely that <i>L. rubellum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Lilium speciosum</i>	I	F	-	-	No		Identified species. <i>L. speciosum</i> is pollinated by insects. It is unlikely that <i>L. speciosum</i> can crossbreed with <i>L. bulbiferum</i> , because the species belong to a different section, and species from different sections cannot crossbreed naturally. Cultivation of lilies is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
	<i>Tulipa</i> spp.	I	W	-	+	No		One species identified
	<i>Tulipa gesneriana</i>	I	F	-	-	No		Identified species. <i>T. gesneriana</i> does not naturally occur in the Netherlands. Most cultivars are hybrids between <i>T. gesneriana</i> and <i>T. fosteriana</i> . Cultivation of tulips is done on open ground (bulbs, vegetative growth), or in greenhouses (cut flowers). Considering the above, containment measures to prevent insect pollination are not necessary.
Linaceae	<i>Linum usitatissimum</i>	SP/I	W	-	+	No		
Linderniaceae	<i>Craterostigma plantagineum</i>	I	-	-	-	No		
Malvaceae	<i>Gossypium hirsutum</i>	I	-	-	+	No		
	<i>Theobroma cacao</i>	I/SP	-	-	-	No		
Marantaceae	<i>Calathea roseopicta</i>	I/SP	-	-	-	No		
Moraceae	<i>Ficus</i> spp.	I/A	W	-	-	No		No relevant species identified
Musaceae	<i>Musa</i> spp.	*	-	-	-	No		One species identified
	<i>Musa acuminata</i>	*	-	-	-	No		Identified species. <i>Musa acuminata</i> does not naturally occur in the Netherlands, and cannot survive under the Dutch climate conditions.

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
Nyctaginaceae	'Bougainvillea vera'	<i>I</i>	-	-	-	No		
Onagraceae	<i>Fuchsia hybrida</i>	<i>I/(B)</i>	<i>G</i>	-	+	No		
Plantaginaceae	<i>Antirrhinum majus</i>	<i>I</i>	<i>W</i>	-	+	No		
Poaceae	<i>Agrostis capillaris</i> (syn. <i>Agrostis tenuis</i> )	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Agrostis stolonifera</i>	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Dactylis glomerata</i>	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Festuca</i> spp.	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	No relevant species identified
	<i>Hordeum vulgare</i>	<i>SP/W</i>	<i>W</i>	+	-	No		
	<i>Lolium</i> spp.	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	No relevant species identified
	<i>Oryza sativa</i>	<i>SP/W/I</i>	-	-	-	No		
	<i>Phleum pratense</i>	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Poa pratensis</i>	<i>SP/A/W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Poa trivialis</i>	<i>W</i>	<i>W</i>	+	-	Yes	Small seeds.	
	<i>Triticum aestivum</i>	<i>SP/W</i>	<i>W</i>	+	-	No		
	<i>Triticum durum</i> (syn. <i>Triticum turgidum</i> subsp. <i>durum</i> )	<i>SP/W</i>	<i>F</i>	+	-	No		
	<i>Zea mays</i>	<i>W/SP</i>	<i>F/W</i>	-	-	No		
Polemoniaceae	<i>Phlox paniculata</i>	<i>I</i>	<i>G</i>	-	+	No		
Polygonaceae	<i>Rumex palustris</i>	<i>W</i>	<i>W</i>	+	-	No		
Primulaceae	<i>Cyclamen persicum</i>	<i>I</i>	- (related garden plants)	-	+	No		
Ranunculaceae	<i>Delphinium elatum</i> (syn. <i>Delphinium belladonna</i> )	<i>I</i>	<i>G/F</i>	-	+	No		
Rosaceae	<i>Fragaria</i> spp.	<i>SP/I</i>	<i>W</i>	-	+	No		Two species identified

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Fragaria vesca</i>	SP/I	W	-	+	No		Identified species. <i>F. vesca</i> is a native species, which is pollinated by insects. Containment measures to prevent insect pollination are necessary.
	<i>Fragaria x ananassa</i>	SP/I	W	-	+	No		Identified species. <i>Fragaria x ananassa</i> is a feral species in the Netherlands. This species is pollinated by insects. Containment measures to prevent insect pollination are necessary.
	<i>Malus</i> spp.	I/W	W	+	+	No		One species identified
	<i>Malus domestica</i>	I/W	W	+	+	No		Identified species. <i>M. domestica</i> can be pollinated by wind and insects. <sup>19</sup> Containment measures to prevent wind and insect pollination are necessary.
	<i>Pyrus</i> spp.	I/W	W	+	+	No		One species identified
	<i>Pyrus communis</i> (= <i>P. domestica</i> )	I/W	W	+	+	No		Identified species. <i>P. communis</i> can be pollinated by wind and insects. <sup>20</sup> Containment measures to prevent wind and insect pollination are necessary.
	<i>Rosa</i> cultivar groups: <i>Rosa</i> cultivar group Climbing floribunda <i>Rosa</i> cultivar group Climbing Grandiflora <i>Rosa</i> cultivar group Climbing Hybrid Tea <i>Rosa</i> cultivar group Climbing Miniature <i>Rosa</i> cultivar group Climbing Polyantha <i>Rosa</i> cultivar group Floribunda <i>Rosa</i> cultivar group Grandiflora <i>Rosa</i> cultivar group Hybrid Kordesii	*	W	-	-	No		

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Rosa</i> cultivar group Hybrid Moyesii <i>Rosa</i> cultivar group Hybrid Musk <i>Rosa</i> cultivar group Hybrid Rugosa <i>Rosa</i> cultivar group Hybrid Tea <i>Rosa</i> cultivar group Hybrid Wichurana <i>Rosa</i> cultivar group Large Flowered Climber <i>Rosa</i> cultivar group Miniature <i>Rosa</i> cultivar group Mini-Flora <i>Rosa</i> cultivar group Polyantha							
Rubiaceae	<i>Bouvardia</i> spp.	*	-	-	-	No		No relevant species identified
Rutaceae	<i>Citrus</i> spp.	I/SP/(B)	-	-	-	No		No relevant species identified
Salicaceae	<i>Salix alba</i>	I/W	W	+ (for male inflorescences only)	+ (for male inflorescences only)	Yes (for plants with female inflorescences only)	Seeds with pappus.	
	<i>Salix babylonica</i> (syn. <i>Salix matsudana</i> )	I/W	W	+ (for male inflorescences only)	+ (for male inflorescences only)	Yes (for plants with female inflorescences only)	Seeds with pappus.	
Scrophulariaceae	'Sutera diffusa'	I	W	-	+	No		
Solanaceae	<i>Capsicum annuum</i>	I	W	-	+	No		

Vascular plants		Characteristics		Physical containment measures required				
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	<i>Nicotiana</i> spp.	SP/I/(B)	W	-	+	Yes	Small seeds.	Three species identified
	<i>Nicotiana benthamiana</i>	I	-	-	-	Yes	Small seeds	Identified species. <i>N. benthamiana</i> (2n=38) does not occur in the Netherlands, and is native to Australia. <i>Nicotiana</i> species are pollinated by insects. <i>N. benthamiana</i> can hybridise with <i>N. tabacum</i> (4n=48), which is a native species in the Netherlands, but due to differences in chromosome numbers it is unlikely that they produce fertile offspring. <sup>21</sup> Considering the above, containment measures to prevent insect pollination are not necessary. <i>N. benthamiana</i> produces small seeds. It cannot be excluded that this species is able to survive in the Netherlands. Containment measures to prevent seed dispersal are therefore necessary.
	<i>Nicotiana sylvestris</i>	I	W	-	+	Yes	Small seeds.	Identified species. <i>N. sylvestris</i> can occur in the Netherlands. <i>Nicotiana</i> species are pollinated by insects. <i>N. sylvestris</i> produces small seeds. Containment measures to prevent seed dispersal are therefore necessary.
	<i>Nicotiana tabacum</i>	I	W	-	+	Yes	Small seeds.	Identified species. <i>N. tabacum</i> can occur in the Netherlands. <i>Nicotiana</i> species are pollinated by insects. <i>N. tabacum</i> produces small seeds. Containment measures to prevent seed dispersal are therefore necessary.
	<i>Petunia hybrida</i>	SP/I/(B)	W	-	+	Yes	Small seeds.	
	<i>Salpiglossis sinuata</i>	I/SP	G	-	+	No		
	<i>Solanum</i> spp.	SP/I/W	W	-	+	No		101 species identified
	<i>Solanum sectie Basarthurum</i>							
	<i>Solanum fraxinifolium</i>	I/W	-	-	-	No		Identified species.

Vascular plants		Characteristics		Physical containment measures required				
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	<i>Solanum muricatum</i>	SP/I/W	G	-	-	No		Identified species. <i>S. muricatum</i> can be used as terrace or pot plant, but this species is not hardy. <sup>22</sup> Containment measures are therefore not necessary.
	<b><i>Solanum</i> sectie <i>Dulcamara</i></b>							
	<i>Solanum dulcamara</i>	SP/I/W	W	-	+	No		
	<b><i>Solanum</i> sectie <i>Etuberosum</i></b>							
	<i>Solanum etuberosum</i>	irrelevant	-	-	-	No		Identified species.
	<i>Solanum fernandezianum</i>	irrelevant	-	-	-	No		Identified species.
	<i>Solanum palustre</i>	irrelevant	-	-	-	No		Identified species.
	<b><i>Solanum</i> sectie <i>Herpystichum</i></b>							
	<i>Solanum trifolium</i>	irrelevant	-	-	-	No		Identified species.
	<b><i>Solanum</i> sectie <i>Lycopersicoides</i></b>							
	<i>Solanum lycopersicoides</i>	irrelevant	-	-	-	No		Identified species.
	<i>Solanum sitiens</i>	irrelevant	-	-	-	No		Identified species.
	<b><i>Solanum</i> sectie <i>Lycopersicon</i></b>							
	<i>Solanum cheesmaniae</i>	SP/I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		Identified species. Besides self-pollination and insect pollination, this species can also be pollinated by wind. This species can hybridise with the cultivated tomato, <i>S. lycopersicum</i> . <sup>23</sup> The chance that <i>S. cheesmaniae</i> plants grown in greenhouses can fertilise plants that are grown outside greenhouses through wind pollination, is negligible. Containment measures to prevent wind pollination are therefore not necessary. Containment measures to

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
								prevent insect pollination are, however, necessary.
	<i>Solanum chilense</i>	I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		Identified species. Besides insect pollination, this species can also be pollinated by wind. This species can hybridise with the cultivated tomato. <sup>23</sup> The chance that <i>S. chilense</i> plants grown in greenhouses can fertilise plants that are grown outside greenhouses through wind pollination, is negligible. Containment measures to prevent wind pollination are therefore not necessary. Containment measures to prevent insect pollination are, however, necessary.
	<i>Solanum chmielewskii</i>	SP/I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		
	<i>Solanum galapagense</i>	SP/I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		Identified species. Besides self-pollination and insect pollination, this species can also be pollinated by wind. This species can hybridise with the cultivated tomato, <i>S. lycopersicum</i> . <sup>23</sup> The chance that <i>S. galapagense</i> plants grown in greenhouses can fertilise plants that are grown outside greenhouses through wind pollination, is negligible. Containment measures to prevent wind pollination are therefore not necessary. Containment measures to prevent insect pollination are, however, necessary.
	<i>Solanum habrochaetes</i>	I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		



Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Solanum lycopersicum</i>	SP/I/W	W	-	+	No		
	<i>Lycopersicon pennellii</i> (syn. <i>Solanum pennellii</i> )	SP/I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		
	<i>Solanum pimpinellifolium</i>	SP/I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		Identified species. Besides self-pollination and insect pollination, this species can also be pollinated by wind. This species can hybridise with the cultivated tomato, <i>S. lycopersicum</i> . <sup>23</sup> The chance that <i>S. pimpinellifolium</i> plants grown in greenhouses can fertilise plants that are grown outside greenhouses through wind pollination, is negligible. Containment measures to prevent wind pollination are therefore not necessary.
	<i>Solanum peruvianum</i>	I/W	- (sexually compatible relative of <i>S. lycopersicum</i> )	-	+	No		
	<b><i>Solanum</i> sectie <i>Melongena</i></b>							
	<i>Solanum melongena</i>	SP/I/W	G	-	+	No		
	<i>Solanum violaceum</i>	SP/I/W	-	-	+	No		Identified species. Besides self-pollination and insect pollination, this species can also be pollinated by wind. Under experimental conditions, crosses between <i>S. melongena</i> and <i>S. violaceum</i> can have a small percentage of fruit setting (4.8%) and may produce seed capable of germinating, but only when <i>S. violaceum</i> functions as pollen donor. <sup>24</sup> Containment measures to prevent insect pollination are therefore required.
	<b><i>Solanum</i> sectie</b>							

Vascular plants		Characteristics		Physical containment measures required				Remarks / changes relative to previous list
Family	Species/Genus	Pollonation <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	
	<i>Petota</i>							
	<i>Solanum acaule</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum agrimonifolium</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum agroglossum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum ajanhuiri</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum alandiae</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum albicans</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum albornozi</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum andigena</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum andreanum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum aracc-papa</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum arnezii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum astleyi</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum avilesii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum berthaultii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum boliviense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum brachistotrichum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum brachycarpum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum bukasovii</i>	irrelevant	-	-	-	No		Identified species. No containment

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollonation <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
								measures required.
	<i>Solanum bulbocastanum</i>	I/W	- (no sexually compatible relatives)	-	-	No		
	<i>Solanum candolleanum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum cantense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum capsicibaccatum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum cardiophyllum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum chacoense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum chomatophilum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum circaeifolium</i>	irrelevant	-	-	-	No		
	<i>Solanum clarum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum colombianum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum commersonii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum demissum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum doddsii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum x edinense</i>	irrelevant	-	-	-	No		Identified species. Natural hybrid of <i>S. demissum</i> and cultivated species <i>S. tuberosum</i> . <sup>25</sup> No containment measures required.
	<i>Solanum ehrenbergii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum fendlerii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.

Vascular plants		Characteristics		Physical containment measures required				Remarks / changes relative to previous list
Family	Species/Genus	Pollonation <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	
	<i>Solanum gandarillasii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum gourlayi</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum guerrercense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum hawkesianum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum hjertingii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum hondelmannii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum hoopesii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum hougasii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum huancabambense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum immite</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum incamayoense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum iopetalum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum jamesii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum kurtzianum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum leptophyes</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum lesteri</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum longiconicum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum marinasense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.

Vascular plants		Characteristics		Physical containment measures required				Remarks / changes relative to previous list
Family	Species/Genus	Pollonation <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	
	<i>Solanum megistacrolobum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum michoacanum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum microdontum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum mochiquense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum morelliforme</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum moscopanum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum multiinterruptum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum neocardenasii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum neorossii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum okadae</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum oplocense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum oxycarpum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum pampasense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum papita</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum paucisectum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum phureja</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum pinnatisectum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum piurana</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.

Vascular plants		Characteristics		Physical containment measures required				Remarks / changes relative to previous list
Family	Species/Genus	Pollonation <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	
	<i>Solanum polyadenium</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum polytrichon</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum raphanifolium</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum ruiz-lealii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum x sambucinum</i>	irrelevant	-	-	-	No		Identified species. Natural hybrid of <i>S. cardiophyllum</i> and <i>S. pinnatisectum</i> . <sup>26</sup> No containment measures required.
	<i>Solanum sandemanii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum schenckii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum semidemissum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum sparsipilum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum spagazzinii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum stenotomum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum stoloniferum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum sucrense</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum tarijense</i>	SP/I/W	-	-	-	No		
	<i>Solanum tarnii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum tuberosum</i>	SP/I/W	W	-	-	No		
	<i>Solanum venturii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum vernei</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum verrucosum</i>	SP/I/W	-	-	-	No		

Vascular plants		Characteristics		Physical containment measures required				
Family	Species/Genus	Pollination <sup>1</sup>	Found in the Netherlands <sup>2</sup>	Prevent wind pollination	Prevent insect pollination	Additional measures necessary for seeds and soil	Reason for measure	Remarks / changes relative to previous list
	<i>Solanum virgultorum</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<i>Solanum x blanco-galdosii</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
	<b>Solanum section Solanum</b>					No		
	<i>Solanum nigrum</i>	SP/I/W	W	-	+	No		“ <i>Solanum americanum</i> (syn. <i>S. nigrum</i> )” changed to “ <i>Solanum nigrum</i> ”.
	<b>Solanum subgenus Archaesolanum</b>							
	<i>Solanum aviculare</i>	irrelevant	-	-	-	No		Identified species. No containment measures required.
Vitaceae	<i>Vitis vinifera</i>	SP/I/W	W	+	+	Yes	Vegetative reproduction possible through rhizomes.	In the former list of containment measures, the reason for additional measures for seeds and soil contained an erroneous reference to small pollen grains. Because the size of the pollen grains does not affect the containment measures required for seeds and soil, this error has now been corrected.

1) Pollination: **A** = apomictic, **I** = insect pollination, **B** = bird pollination, **W** = wind pollination, **SP** = self-pollination, \* = no seeds can develop under Dutch conditions.

2) Found in the Netherlands: **W** = (wild) included in the National Flora and Fauna Database<sup>27</sup>, **F** = (farmland) is cultivated in the Netherlands, **G** = (garden) found in gardens, - = not found outdoors in the Netherlands.

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