

**FORMAT FOR A PRA RECORD (version 3 of the Decision support scheme for PRA for quarantine pests)**

	European and Mediterranean Plant Protection Organisation		
	Organisation Européenne et Méditerranéenne pour la Protection des Plantes		
	<b>Guidelines on Pest Risk Analysis</b>		
	<b>Lignes directrices pour l'analyse du risque phytosanitaire</b>		
	<b>Decision-support scheme for quarantine pests Version N°3</b>		
<b>PEST RISK ANALYSIS FOR <i>Heracleum persicum</i></b>			
<b>Pest risk analyst:</b>			
EPPO Secretariat			
<b>Stage 1: Initiation</b>			
<b>1 What is the reason for performing the PRA?</b>			<i>Heracleum persicum</i> is considered invasive in the EPPO region.
<b>2 Enter the name of the pest</b>			<i>Heracleum persicum</i>
<b>2A Indicate the type of the pest</b>			Plantae
<b>2B Indicate the taxonomic position</b>			Apiaceae
<b>3 Clearly define the PRA area</b>			EPPO Region

4 Does a relevant earlier PRA exist?		Yes
5 Is the earlier PRA still entirely valid, or only partly valid (out of date, applied in different circumstances, for a similar but distinct pest, for another area with similar conditions)?		A PRA exist for <i>H. sosnowskyi</i> which is very similar to <i>H. persicum</i> . The PRA on <i>H. sosnowskyi</i> will therefore be used since it is valid and similar on many aspects.
Stage 2A: Pest Risk Assessment - Pest categorization		
6 Specify the host plant species (for pests directly affecting plants) or suitable habitats (for non parasitic plants) present in the PRA area.		Coastal habitats (beaches), Grasslands, meadows, pasturelands, edges of forests (e.g. <i>Betula</i> spp.), wetlands, riverbanks/canal sides, rail/roadsides, and urban areas.
7. Specify the pest distribution		<p><b>EPPO region:</b> Denmark, Norway, Finland, Sweden.  <b>Asia (native):</b> Turkey, Iran, Iraq.</p> <p>Note: Possible occurrence in Hungary and in the U.K</p>
8. Is the organism clearly a single taxonomic entity and can it be adequately distinguished from other entities of the same rank?	Yes	There have been confusions between <i>Heracleum mantegazzianum</i> , <i>H. sosnowskyi</i> and <i>H. persicum</i> , but recent genetical studies highlighted the fact that there are three distinct tall <i>Heracleum</i> species invading Europe. A close genetic relationship between the three invasive <i>Heracleum</i> species in Europe was also found (Jahodová <i>et al.</i> , 2007).
9. Even if the causal agent of particular symptoms has not yet been fully identified, has it been shown to produce consistent symptoms and to be transmissible?		
10. Is the organism in its area of current distribution a known pest (or vector of a pest) of plants or plant products?	Yes	The species is considered a pest being a threat to biodiversity in Scandinavia.

<b>11. Does the organism have intrinsic attributes that indicate that it could cause significant harm to plants?</b>	Yes	
<b>12 Does the pest occur in the PRA area?</b>	Yes	
<b>13. Is the pest widely distributed in the PRA area?</b>	No	<i>H. persicum</i> is considered to have a limited distribution.
<b>14. Does at least one host-plant species (for pests directly affecting plants) or one suitable habitat (for non parasitic plants) occur in the PRA area (outdoors, in protected cultivation or both)?</b>	Yes	
<b>15. If a vector is the only means by which the pest can spread, is a vector present in the PRA area? (if a vector is not needed or is not the only means by which the pest can spread go to 16)</b>		A vector is not needed
<b>16. Does the known area of current distribution of the pest include ecoclimatic conditions comparable with those of the PRA area or sufficiently similar for the pest to survive and thrive (consider also protected conditions)?</b>	Yes	
<b>17. With specific reference to the plant(s) or habitats which occur(s) in the PRA area, and the damage or loss caused by the pest in its area of current distribution, could the pest by itself, or acting as a vector, cause significant damage or loss to plants or other negative economic impacts (on the environment, on society, on export markets) through the effect on plant health</b>	Yes	

<b>in the PRA area?</b>		
<b>18. This pest could present a risk to the PRA area.</b>	Yes	
<b>19. The pest does not qualify as a quarantine pest for the PRA area and the assessment for this pest can stop.</b>		

**Section 2B: Pest Risk Assessment - Probability of introduction/spread and of potential economic consequences**

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
		<p><b>Note: If the most important pathway is intentional import, do not consider entry, but go directly to establishment. Spread from the intended habitat to the unintended habitat, which is an important judgement for intentionally imported organisms, is covered by questions 1.33 and 1.35.</b></p>
<p><b>1.1. Consider all relevant pathways and list them</b></p>		<p>Based on the PRA on <i>H. sosnowskyi</i>, the pathway that can be considered are the following:</p> <ul style="list-style-type: none"> <li>- involuntary introduction with soil/growing medium (with organic matters) as a commodity</li> <li>- involuntary introduction with soil as a contaminant (on used machinery, vehicules, footwear, etc.)</li> </ul> <p>Pathways not considered:</p> <ul style="list-style-type: none"> <li>- <i>H. persicum</i> has been voluntary introduced in Scandinavia as an ornamental plant. According to the PPP index (See website), the species is not traded.</li> <li>- While <i>H. sosnowskyi</i> has been voluntary introduced as a fodder crop or as a meliferous plant, it is not the case for <i>H. persicum</i>, this pathway is therefore not considered.</li> <li>- - Australian people on internet report that the species is traded as a spice by Persian grocers (The Garden Web Website), and wish to cultivate the plant themselves. This could possibly happen as well in Europe, but this remains very anecdotic and is not considered further.</li> </ul> <p>Natural spread</p> <ul style="list-style-type: none"> <li>- natural spread by wind and on the fur of animals (cattle): this is not considered in the</li> </ul>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
		entry pathways analysis as it mainly contributes to local spread. Additionally, the presence of <i>H. persicum</i> on unpopulated islands indicates that it may be spread with sea water (Alm 1988; Alm & Jensen 1993).
1.2. Estimate the number of relevant pathways, of different commodities, from different origins, to different end uses.	Moderate  Low uncertainty	
1.3. Select from the relevant pathways, using expert judgement, those which appear most important. If these pathways involve different origins and end uses, it is sufficient to consider only the realistic worst-case pathways. The following group of questions on pathways is then considered for each relevant pathway in turn, as appropriate, starting with the most important.		<ul style="list-style-type: none"> <li>- unvoluntary introduction with soil as a commodity: similar as for <i>H. sosnowskyi</i></li> <li>- unvoluntary introduction with soil as a contaminant (on used machinery, footwear,...): similar as for <i>H. sosnowskyi</i></li> </ul> <p>See PRA on <i>H. sosnowskyi</i>.</p>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
<b>Conclusion on the probability of entry. Risks presented by different pathways.</b>		<ul style="list-style-type: none"> <li>- Soil/growing medium (with organic matters) as a commodity: moderately likely in EU countries, unlikely in non EU EPPO countries.</li> <li>- Involuntary entry with soil as a contaminant on used machinery: moderately likely</li> <li>- Involuntary entry with soil as a contaminant on used vehicles: moderately likely</li> <li>- Involuntary entry with soil as a contaminant on footwear: moderately likely</li> </ul>
<b>1.16. Estimate the number of host plant species or suitable habitats in the PRA area (see question 6).</b>	<b>Many</b>  <b>Low uncertainty</b>	Coastal habitats (beaches), Grasslands, meadows, pasturelands, edges of forests (e.g. <i>Betula</i> spp.), wetlands, riverbanks/canal sides, rail/roadsides, and urban areas.
<b>1.17. How widespread are the host plants or suitable habitats in the PRA area? (specify)</b>	<b>Widely</b>  <b>Low uncertainty</b>	These habitats are very widely distributed in the EPPO region.
<b>1.18. If an alternate host or another species is needed to complete the life cycle or for a critical stage of the life cycle such as transmission (e.g. vectors), growth (e.g. root symbionts), reproduction (e.g. pollinators) or spread (e.g. seed dispersers), how likely is the pest to come in contact with such species?</b>	<b>Not relevant</b>	No alternate host needed.
<b>1.19. How similar are the climatic conditions that would affect pest establishment, in the PRA area and in the current area of distribution?</b>	<b>Similar</b>  <b>Medium uncertainty</b>	<i>H. persicum</i> is native from Turkey, Iran and Iraq, and naturalized in Scandinavia. The species therefore seems able to adapt to different climatic conditions. There is no additional information on its environmental requirements. The species is supposed to be able to establish in temperate and Mediterranean areas.

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
<b>1.20. How similar are other abiotic factors that would affect pest establishment, in the PRA area and in the current area of distribution?</b>	<b>Similar</b> <b>High uncertainty</b>	There are no data on abiotic requirements of the species. In Scandinavia, it established in diverse habitats including beaches. The abiotic factors of the PRA area are therefore considered to be similar from the ones of the current area of distribution of the species.
<b>1.21. If protected cultivation is important in the PRA area, how often has the pest been recorded on crops in protected cultivation elsewhere?</b>	<b>Not relevant</b>	
<b>1.22. How likely is it that establishment will occur despite competition from existing species in the PRA area?</b>	<b>Very likely</b> <b>Medium uncertainty</b>	<i>H. persicum</i> already established in the PRA area. <i>H. persicum</i> , as well as the two others <i>Heracleum</i> spp., block sunlight from penetrating to the undergrowth and suppress other vegetation.
<b>1.23. How likely is it that establishment will occur despite natural enemies already present in the PRA area?</b>	<b>Very likely</b> <b>Medium uncertainty</b>	<i>H. persicum</i> already established in the PRA area, and there is no record of natural enemies.
<b>1.24. To what extent is the managed environment in the PRA area favourable for establishment?</b>	<b>Favourable</b> <b>Medium uncertainty</b>	<i>H. persicum</i> is very often found in managed habitats. As for <i>H. sosnowskyi</i> , <i>H. persicum</i> is supposed to be nitrophilous and its expansion could be stimulated by eutrophication of the environment (Laivins & Gavrilova, 2003).
<b>1.25. How likely is it that existing pest management practice will fail to prevent establishment of the pest?</b>	<b>Very likely</b> <b>Low uncertainty</b>	In managed habitats such as pastures and road sides, usual measure is cutting. This existing measure is usually insufficient since there is rapid re-growth from below ground, and it may encourage the flowering of the plant (Holm, 2005).  There are no existing pest management practice in the unmanaged habitats (river banks, beaches) that this species invade.
<b>1.26. Based on its biological characteristics, how likely is it that the pest could survive eradication programmes in the PRA area?</b>	<b>Moderately likely</b> <b>High</b>	There is no information on seed longevity, it is therefore expected to be 7 year (Andersen & Calov, 1996), as for <i>H. sosnowskyi</i> . As for any biological invasion, eradication should be possible for early infestations.



Question	Rating + uncertainty	Explanatory text of rating and uncertainty
	uncertainty	
<b>1.27. How likely is the reproductive strategy of the pest and the duration of its life cycle to aid establishment?</b>	<b>Likely</b>  <b>Low uncertainty</b>	The plant has a growth and development similar to <i>H. mantegazzianum</i> . Pollination by insects is common, but even self-pollination occurs. The species is spread by seeds and does not reproduce vegetatively. Because the side umbels of the plant are often poorly developed and do not always produce ripe fruits, <i>H. persicum</i> 's potential for seed production is thought to be inferior to <i>H. mantegazzianum</i> and <i>H. sosnowskyi</i> . But <i>H. persicum</i> is polycarpic and blooms several times, while <i>H. sosnowskyi</i> and <i>H. mantegazzianum</i> are monocarpic, making <i>H. persicum</i> 's reproductive strategy more competitive. It means that the leaves of <i>H. persicum</i> wilt in the autumn, but the plant overwinters with buds below the soil surface. Nutrients are stored in the plant's root system and the size and development of the root system determine the time for flowering. The plant needs one or more years to build up a nutrient reserve in its root system to be able to bloom.
<b>1.28 How likely are relatively small populations to become established?</b>	<b>Likely</b>  <b>Low uncertainty</b>	The species is already established in the EPPO region and according to Jahodová <i>et al.</i> (2007), it is likely that the current pattern of genetic diversity in Europe resulted from multiple introductions of <i>H. persicum</i> . The same phenomenon has been observed for <i>H. mantegazzianum</i> and <i>H. sosnowskyi</i> . The current populations had enough diversity to establish and to become invasive.
<b>1.29. How adaptable is the pest?</b>	<b>Moderate</b>  <b>Medium uncertainty</b>	No subspecies or pathotypes are reported, but the species appear in a wide range of habitats and climates.
<b>1.30. How often has the pest been introduced into new areas outside its original area of distribution? (specify the instances, if possible)</b>	<b>Rarely</b>  <b>Low uncertainty</b>	It has been introduced in few countries outside its native range.

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
1.31. If establishment of the pest is very unlikely, how likely are transient populations to occur in the PRA area through natural migration or entry through man's activities (including intentional release into the environment) ?	Not relevant	The plant is established in the EPPO region.
Conclusion on the probability of establishment	Likely  Low uncertainty	The species is already established in the EPPO region, though it has been planted in these places. It is likely to enter new countries as a contaminant, through seeds, which require cold temperatures for more than 2 months.
1.32. How likely is the pest to spread rapidly in the PRA area by natural means?	Moderately likely  Low uncertainty	The plant does not reproduce vegetative, but seeds are dispersed locally near the mother plants and over long distances by watercourses.
1.33. How likely is the pest to spread rapidly in the PRA area by human assistance?	Moderately likely  Low uncertainty	Movement of seeds occurs through accidental human activities: collection of seed-heads for ornament followed by disposal on rubbish heaps; movement of soil during building and excavation; movement along roads or railways by attachment to vehicles or by air currents; movement by agricultural and forest tractors which carry seeds stuck to radiators and roofs. The seed can also be transported attached to clothes or animal fur (e.g. sheep and cattle) (Nielsen <i>et al.</i> , 2005).
1.34. Based on biological characteristics, how likely is it that the pest will not be contained within the PRA area?	Moderately likely  Medium uncertainty	Considering that the species only reproduce by seeds, and that seeds have a supposed longevity of 7 years (Andersen & Calov, 1996), it should be possible to contain the species.
Conclusion on the probability of spread	Moderately likely  Medium	Although the species could be contained if measures would be taken, the species has biological characteristics allowing both natural and human assisted spread.

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
	uncertainty	
<p><b>Conclusion on the probability of introduction and spread</b>  <b>The overall probability of introduction and spread should be described. The probability of introduction and spread may be expressed by comparison with PRAs on other pests.</b></p>		<p>Introduction has already occurred, and combining the probabilities of entry and establishment, probability of entry is considered to be moderately likely.</p>
<p><b>Conclusion regarding endangered areas 1.35. Based on the answers to questions 1.16 to 1.34 identify the part of the PRA area where presence of host plants or suitable habitats and ecological factors favour the establishment and spread of the pest to define the endangered area.</b></p>		<p>Grasslands, forests, wetlands, riverbanks/canal sides, rail/roadsides, woodland, grasslands, the edges of clearings, rubbish dumps and waste ground and urban areas of the temperate EPPO region (northern and central parts), and possibly of the Mediterranean area.</p>
<p><b>2. In any case, providing replies for all hosts (or all habitats) and all situations may be laborious, and it is desirable to focus the assessment as much as possible. The study of a single worst-case may be sufficient. Alternatively, it may be appropriate to consider all hosts/habitats together in answering the questions once. Only in certain circumstances will it be necessary to answer the questions separately for specific hosts/habitats.</b></p>		
<p><b>2.1. How great a negative effect does the pest have on crop yield and/or quality to cultivated plants or on control costs within</b></p>	<p><b>Minimal</b>  <b>Medium</b></p>	<p>There are no records of direct impact on crops.  <b>Control costs are not reported.</b></p>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
its current area of distribution?	uncertainty	
<b>2.2. How great a negative effect is the pest likely to have on crop yield and/or quality in the PRA area without any control measures?</b>	<b>Minimal</b>  Medium uncertainty	The situation elsewhere is expected to be the same as where the species is present.
<b>2.3. How easily can the pest be controlled in the PRA area without phytosanitary measures?</b>	<b>With some difficulty</b>  Medium uncertainty	There are some existing control measures (chemical and mechanical), though, they have to be applied with care, otherwise the species may re-grow. Another difficulty arises from the fact that the species grows in habitats which are not usually managed, such as fallow lands, natural and semi-natural habitats.
<b>2.4. How great an increase in production costs (including control costs) is likely to be caused by the pest in the PRA area?</b>	Minimal  Low uncertainty	There are no records of direct impact on crops.
<b>2.5. How great a reduction in consumer demand is the pest likely to cause in the PRA area?</b>	Minor  Low uncertainty	No record on any possible impact on consumer demand.
<b>2.6. How important is environmental damage caused by the pest within its current area of distribution?</b>	Minor  Medium uncertainty	<i>Heracleum</i> spp. can create stands that may range in extent from square metres to hectares; small patches, linear stands or fringes can be found. The density of populations may also vary: in large stands, it ranges from sparse growth (1-3 adult individuals/10 m <sup>2</sup> ) to almost entire ground cover (more than 20 adult individuals/10 m <sup>2</sup> ) (Nielsen <i>et al.</i> , 2005). Along riverbanks, it can almost totally replace the natural vegetation and threaten biodiversity, including fauna associated with (native) plants, building a 'giant hogweed landscape' (Nielsen <i>et al.</i> , 2005). Nevertheless, these impacts are nuanced in Thiele and

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
		<p>Otte (2007), stating loss of plant species diversity in habitats invaded by <i>H. mantegazzianum</i> in Germany is a general symptom of successional changes rather than a particular effect of invasive species.</p> <p>Sine <i>H. persicum</i> colonizes natural habitats such as beaches, it is expected that its impact might be higher than <i>H. mantegazzianum</i>.</p>
<p><b>2.7. How important is the environmental damage likely to be in the PRA area (see note for question 2.6)?</b></p>	<p><b>Minor</b> <b>Medium uncertainty</b></p>	<p>If introduced into Mediterranean or temperate areas which might be more suitable than Scandinavia, the species could be a threat in semi-natural and natural ecosystems such as beaches.</p>
<p><b>2.8. How important is social damage caused by the pest within its current area of distribution?</b></p>	<p><b>Moderate to major</b> <b>Medium uncertainty</b></p>	<p>As <i>H. mantegazzianum</i> and <i>H. sosnowskyi</i>, <i>H. sosnowskyi</i> contains photosensitizing furanocoumarins. In contact with the human skin and in combination with ultraviolet radiation, a phytotoxic reaction can occur 15 minutes after contact, with a sensitivity peak between 30 min and 2 hours causing burnings of the skin.</p> <p>After about 24 hours, flushing or reddening of the skin (erythema) and excessive accumulation of fluid in the skin (edema) appear, followed by an inflammatory reaction after three days. Approximately one week later a hyper-pigmentation (usually darkening the skin) occurs which can last for months. The affected skin may remain sensitive to ultraviolet for years.</p> <p>In addition, several furanocoumarins have been reported to cause cancer (carcinogenic) and to cause malformation in the growing embryo (teratogenic) (Nielsen <i>et al.</i>, 2005). Nevertheless, such impacts are reported for <i>H. mantegazzinum</i> and <i>H. sosnowskyi</i>, but data are missing for <i>H. persicum</i>.</p> <p>Moreover, dense infestations can seriously interfere with access to amenity areas, riverbanks, etc., and along roadsides, large stands can reduce visibility and result in road safety hazards.).</p>
<p><b>2.9. How important is the social damage likely to be in the PRA area?</b></p>	<p><b>Moderate</b> <b>Medium uncertainty</b></p>	<p>If introduced into Mediterranean or temperate areas which might be more suitable than Scandinavia, the species could form denser stands and have more photosensitizing effects on people.</p>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
<b>2.10. How likely is the presence of the pest in the PRA area to cause losses in export markets?</b>	<b>Unlikely</b>	There are no interception records for this species.
As noted in the introduction to section 2, the evaluation of the following questions may not be necessary if the responses to question 2.2 is "major" or "massive" and the answer to 2.3 is "with much difficulty" or "impossible" or any of the responses to questions 2.4, 2.5, 2.7, 2.9 and 2.10 is "major" or "massive" or "very likely" or "certain". You may go directly to point 2.16 unless a detailed study of impacts is required or the answers given to these questions have a high level of uncertainty.		
<b>Degree of uncertainty</b> Estimation of the probability of introduction of a pest and of its economic consequences involves many uncertainties. In particular, this estimation is an extrapolation from the situation where the pest occurs to the hypothetical situation in the PRA area. It is important to document the areas of uncertainty (including identifying and prioritizing of additional data to be collected and research to be conducted) and the degree of uncertainty in the assessment, and to indicate where expert judgement has been used. This is necessary for transparency and may also be useful for identifying and prioritizing research needs.		When performing the PRA the following uncertainties have been identified: <ul style="list-style-type: none"> <li>- Longevity of seeds</li> <li>- Soil pathway: volumes, frequency, uses</li> <li>- Climatic prediction for the species and ability to establish in the Mediterranean area</li> <li>- Ease of management and eradication</li> <li>- Impact on environment</li> <li>- Records on photosensitizing impact on people</li> </ul>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
<p><b>It should be noted that the assessment of the probability and consequences of environmental hazards of pests of uncultivated plants often involves greater uncertainty than for pests of cultivated plants. This is due to the lack of information, additional complexity associated with ecosystems, and variability associated with pests, hosts or habitats.</b></p>		
<p><b>Evaluate the probability of entry and indicate the elements which make entry most likely or those that make it least likely. Identify the pathways in order of risk and compare their importance in practice.</b></p>	<p><b>Moderately likely</b></p> <p><b>Medium uncertainty</b></p>	<ul style="list-style-type: none"> <li>- Soil/growing medium (with organic matters) as a commodity: moderately likely in EU countries, unlikely in non EU EPPO countries.</li> <li>- Involuntary entry with soil as a contaminant on used machinery: moderately likely The probability of <i>H. persicum</i> to be on tires of used machinery is quite high, but the movement of such machinery is considered to be restricted to local areas, or neighbouring countries.</li> <li>- Involuntary entry with soil as a contaminant on used vehicles: moderately likely. The probability of the seed of <i>H. persicum</i> to be a contaminant of vehicles is lower than its probability to be associated to machinery, but the movement of vehicles is more frequent and widespread than the movmnt of machinery.</li> <li>- Involuntary entry with soil as a contaminant on footwear: moderately likely.</li> <li>- Voluntary entry for agricultural (used as a fodder, melferifous plant) or ornamental purposes: unlikely. There is no record of its use as an ornamental plant.</li> </ul>

Question	Rating + uncertainty	Explanatory text of rating and uncertainty
<b>Evaluate the probability of establishment, and indicate the elements which make establishment most likely or those that make it least likely. Specify which part of the PRA area presents the greatest risk of establishment.</b>	<b>Likely</b>	<i>H. persicum</i> is already established in some countries of the EPPO region. The species would enter a new country as a seed, and it has a short longevity and needs cold temperatures for 2 months at least. Temperate and Mediterranean countries are considered to be at risk.
<b>List the most important potential economic impacts, and estimate how likely they are to arise in the PRA area. Specify which part of the PRA area is economically most at risk.</b>		The most important impact are on: <ul style="list-style-type: none"> <li>- Human health,</li> <li>- Erosion of river banks</li> <li>- Costs of management of the plant</li> <li>- Impact on biodiversity through competition with other species</li> </ul>
<b>The risk assessor should give an overall conclusion on the pest risk assessment and an opinion as to whether the pest or pathway assessed is an appropriate candidate for stage 3 of the PRA: the selection of risk management options, and an estimation of the associated pest risk.</b>		The species represent a threat to human health and biodiversity. Voluntary introduction is unlikely, and the most likely entry pathways identified are not regulated (in the European Union). National management measures could be efficient measures as well.

<b>This is the end of the Pest risk assessment</b>	
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### Stage 3: Pest risk Management

Question	Y/N	Explanatory text
<b>3.1. Is the risk identified in the Pest Risk Assessment stage for all pest/pathway combinations an acceptable risk?</b>	No	
See PRA for <i>Heracleum sosnowskyi</i>		
<b>Conclusion of Pest Risk Management. Summarize the conclusions of the Pest Risk Management stage. List all potential management options and indicate their effectiveness. Uncertainties should be identified.</b>		<p><u>Soil/growing medium (with organic matters) as a commodity</u>  Pest-free place of production  Pest-free area  Internal surveillance and/or eradication campaign</p> <p><u>Involuntary entry with soil as a contaminant on used machinery</u>  Cleaning of machinery  Internal surveillance and/or eradication campaign</p> <p><u>Involuntary entry with soil as a contaminant on used vehicles</u>  Internal surveillance and/or eradication campaign</p> <p><u>Involuntary entry with soil as a contaminant on footwear</u>  Publicity to enhance public awareness on pest risks  Internal surveillance and/or eradication campaign</p>

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