

**Monitoring checklist for Potato with altered starch content or ratio – ENV/08/09**

Trait or process  (WHAT RISK)	Specific monitoring issue identified from an ERA <sup>1</sup>  (WHAT CHARACTER)	Monitoring methods (HOW) <sup>2</sup>		Environment e.g. field, natural habitats applicable to CSM/GS <sup>3</sup>  (WHERE)	Time for monitoring duration of period, timing applicable to CSM/GS  (WHEN)	
		CSM <sup>4</sup> (if identified by an ERA)	General Surveillance			
<b>Persistence and Invasiveness &amp; selective advantage or disadvantage</b>	volunteers (in fields)	Monitoring of volunteers	Volunteer mapping If unexpected result, identify whether GMO. Questionnaires and other survey methods	In representative environments where the GMP might survive as volunteer, e.g.. agricultural fields and field margins	Five years During the growing season	
	establishment of the GMP <sup>5</sup> outside of fields	Monitoring of GMP outside fields	Mapping abundance of potato outside fields. If unexpected results, identify whether GMO. If unexpected spread, consider monitoring of non-target organisms outside field, see below.	Field margins and natural habitats in representative GMO-growing regions,	During the authorisation period, and long term if necessary.  During the growing season	
	Spread, persistence and accumulation of GMP in the environment	No relevant monitoring issues other than those accounted for above				
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	Presence of GMP products in the environment	No relevant monitoring issues . The products are not foreign.				

<sup>1</sup> ERA – Environmental Risk Assessment

<sup>2</sup> Kjellson G. and Strandberg, M. (2001) Monitoring and surveillance of genetically modified higher plants. Guidelines for procedures and analysis of environmental effects. Birkhäuser Verlag Basel. 119 pp. VDI-Handbook Biotechnology, Part I: GMO-Monitoring, VDI 4330 (www.vdi.de)

<sup>3</sup> GS – General Surveillance

<sup>4</sup> CSM – Case Specific Monitoring

<sup>5</sup> GMP = genetically modified plant

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<b>Potential for Gene transfer</b>	vertical to crop plants (volunteers, feral), leading to plants with one or several GM traits	Monitoring issue is not proportional to risk				
	vertical to wild plants	No relevant monitoring issues. There are no wild hybridsible relatives in EU.				
	horizontal to micro-organisms in soil, and living on or next to the GMP	No relevant monitoring issues. The traits do not confer a selective advantage, genes are already present and methodology is undeveloped.				
<b>Interaction between GMP and target organisms</b>	reduced abundance and diversity of weeds or development of new weed species	No relevant monitoring issues. There is no target organism.				
	resistance development in animals	No relevant monitoring issues. There is no target organism				

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			CSM <sup>4</sup> (if identified by an ERA)	General Surveillance		
	Resistance development in plants	No relevant monitoring issues. There is no target organism				
	secondary pests	No relevant monitoring issues. There is no target organism				
<b>Interaction between GMP and non-target organisms</b>	Impact on non-target organisms	Monitoring of abundance of relevant (indicator) species representing a larger set of non-target organisms  Relevant indicators should be defined for representative geographic regions where cultivation will be performed depending on crop/trait combination		Identification of relevant monitoring objectives and parameters which are suitable on non-target organisms in the environment: Surveillance of abundance of relevant (indicator) species representing a larger set of non-target organisms eg: Hypogaeic phytophages Hypogaeic predators Parasitoids Earth worms (Lumbricidae) Nematodes Springtails (Collembola)	In representative fields and field margins where the GMP is grown Studies in natural habitats can be requested after unexpected results from the monitoring of GMP presence outside fields.	Two years. (Should be written in the box above.)

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			CSM <sup>4</sup> (if identified by an ERA)	General Surveillance		
		No relevant monitoring issues. Traits do not confer disease resistance. Accounted for above.				
	Changes of susceptibility to non-target pests & diseases	Monitoring the damage caused by pests or pesticide use.		Pest and diseases survey linked to crops practices Pest survey (e.g. collection by knocking them off plants, count of damage by infestation) or survey on pesticide use in the crop.	In the fields where the GMP is grown	During cultivation
	Other Impacts on habitat diversity and biodiversity	No other relevant monitoring issue has been identified for this crop/trait combination.				
Changes in biogeochemical processes		Monitoring relevant soil functions/parameters		Germination and growth tests, soil parameters as pH, nutrient content, consistency etc.	In representative fields where the GMP is grown	During the authorisation period, and long term if necessary.
Changes in cultivation practices		No relevant monitoring issues. The traits are not agricultural traits.				