

**Potato**

**Jan Verhagen**

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## Potato production systems in different agro ecological regions and their relation with climate change

Position paper

Greet Blom-Zandstra & Jan Verhagen



Wageningen UR (University & Research centre)  
Business Unit Agricultural Research  
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Table 8. Expert judgement of the authors on regional risks distribution, actions and research priorities.

Risk category	Region	Farm/sector level actions	Research needs
GHG	Europe (east, south), India, China	Precision Agriculture C & N flows, reuse residuals	Optimisation precision agriculture (nutrient management)
High daily Temperatures	Mid Africa, India, China (South)	Cultivar selection	Breeding
<b>Water</b>			
Lack of water (drought)	Arid zone: Turkey, China (North), India, Pakistan, Afghanistan, VS	Irrigation, Breeding, Integrated farming systems, extension	Breeding, valorisation secondary metabolites crops, optimisation of water use
Excess of water	China, Mid America, Mid Africa	Insurance	Risk analysis
<b>Extremes</b>			
Drought	Arabian peninsula, South-east Asia, North-west Africa	Integration different farming systems	Enhance water use efficiency
Excess of water	Highly populated delta zones in south Asia and North west Europe	Water management	Protection strategies by vegetation cover
Erosion	China, Chile, Peru, Europe (south), Afghanistan, Mid Africa	Plantings, Water Management, Contour Plowing	Protection strategies by vegetation cover
Erosion in combination with water excess	China, East Africa, Brazil	Plantings, Water Management, Contour Plowing	Protection strategies by vegetation cover
Pests and diseases (late blight)	Europe, China	Integrated pest management, biodiversity and crop selection	Scenario/Risk analysis, breeding
Nitrogen surplus	Europe, Turkey, India, Pakistan Afghanistan, China (East), VS	Precision Agriculture	Precision agriculture
Low land use efficiency	China, India, Pakistan, Afghanistan, Mid and East Europe, Africa	Integrated crop management, integrated farm management	Understanding landscapes, remote sensing
<b>Salinity</b>			
Lack of water	Arabian peninsula, South-east Asia, North-west Africa	Irrigation strategies, salt tolerant crop selection, cultivar selection	Valorisation secondary metabolites crops, dynamics physiological responses, breeding
Excess of water	Highly populated delta zones in south Asia and North west Europe	Plantings, anaerobia and salt tolerant crop selection	Integration aquaculture-agriculture-ecosystems, breeding

# Key messages

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- **Technological development is key** in maintaining or increasing yields (responsive management, breeding, biotech) and in achieving mitigation goals (N-management, precision agriculture).
  - **Technology transfer is lagging** for developing countries but critically important in increase N-use efficiencies. This requires enhancing the skills of farmers and understanding of biophysical processes.
  - **Adaptation is local.** This is reflected in the regional focus of adaptation priorities and research agendas, but some common ground is found in themes as drought stress, pest and diseases and saline conditions
  - **Increasing efficiencies** in soil and crop management, i.e. doing things better, is the preferred way to move forward.
  - **Linking to local priorities and systems** or integrating climate change into the workflow of farmers offers opportunities to combine adaptation and mitigation and adoption rates for example by improving fertilizer and water management.
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