

Report of the workshop exploring the genetic diversity of potatoes for enhanced resilience of the potato sector

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Our project

This work, funded by The Scottish Government, set out to explore the conditions surrounding genetic diversity in the Scottish potato sector in order to ensure that the sector is best placed in take advantage of opportunities, manage risks and create resilience. We invited stakeholders from policy, science and industry to help us to understand the challenges that the potato sector faces in terms of genetic diversity. We held a stakeholder workshop at The James Hutton Institute in Dundee on 28/11/2016 in order to co-produce a picture of the drivers that shape the current configuration of species and varieties within the sector. A draft set of statements representing stakeholder views about challenges and opportunities within the sector is presented for additional feedback. *We would very much appreciate your continued assistance and kindly request that you complete the draft survey and return the completed form to us at your earliest convenience.* The exercise should take around 10 minutes. The final statements will feed into a survey which will take place over the coming year. A wider group of stakeholders, also drawn from science, policy and industry, will rank and sort the statements to identify potential priorities.

Background

Recent modes of food provision have been criticised for having negative impacts on food systems by promoting increasing uniformity of products, processes, consumption, and production patterns. Scientists at times oppose this, arguing that broad genetic diversity in ecological systems is typically optimal. However, food systems are made up of people, environments and technology interconnected within institutional and other infrastructures. They intersect with markets that often encourage economies of scale, technological developments that promote particular practices and changing consumer demands that the sector needs to satisfy. The potato sector, as with all food systems, has to manage these dynamics over and above biological or ecological considerations. In a context in which food security has come to the fore front of international policy with increasing population pressures on agricultural commodities and with the added uncertainties that climate change heralds, policy makers need the appropriate analytical and decision tools to make informed decisions about these systems. This project aims to deliver a systematic overview of the interconnections between elements within the system. Putting expectations of the different stakeholders along the food chain into perspective therefore provides a unique opportunity to identify the trigger points on which to focus innovations, at both technological and policy levels, that will enhance the sustainability of the food chain.

Capturing stakeholders perspectives

We recognise that many stakeholders work with a small number of species and varieties because of commercial pressures. Potatoes are primarily cultivated to serve markets rather than for ecological ends. Consumer demand may not support greater variety and managing a portfolio of varieties incurs inventory cost and requires additional management practices. We therefore organised the stakeholder discussion around the conundrum:

"Is there too much or too little genetic diversity in the Scottish potato sector"?

Your discussion in the workshop provided valuable data and we are grateful for your expert insights. In particular, some of the highlights of this workshop are:

• The potato food chain is subject to external driving forces environmental, economic or societal while at the same time, policies and technological progress can potentially open up opportunities while enabling innovation at different levels of the food chain.

- The various actors along the potato food chain pursue diverse interests in terms of reaction to those driving forces. Those interests might sometimes counteract each other and better understanding is needed as to where and when synergies can be created for a better resilience of the food chain.
- Taking a closer look at the management of the genetic diversity of potatoes, the objectives behind genetic selection and
 conservation have changed over time. The pressures from pests and diseases have evolved as well as the market environment (both
 national and international) and societal expectations. Consequently, there is a need to find the right balance between those diverse
 selection and conservation objectives and strategies while clarifying the apparent confusion generated at the consumer end of the
 food chain, missed marketing opportunities and misused breeding efforts. The right balance should be achieved while selecting and
 conserving climate smart varieties and greener production processes that will both contribute to better food security, adaptation
 and mitigation within the current climate change context.
- Various types of innovation can be tailored to the needs of different levels of the food chain: innovation on products and processes, on the organisation and structure of the food chain, on the marketing side as well as on knowledge transfer processes to ensure conservation of knowledge and experience around potato production.

What those results reveal is that examining the food chain and understanding the drawbacks and opportunities for the potato sector cannot be achieved through looking at it from a single perspective. Achieving better understanding to promote enhanced resilience requires a broader consultation of the various stakeholders in the sector.

The results of the discussion have been arranged in the form of the statements to feed into the next phase of the study which will involve a larger participant group who will sort and rate the statements using an on-line survey tool. Before conducting the survey *we would very much like your help to validate and pilot the statements on the following pages* by evaluating those we have developed and adding additional statements where you think there are gaps. *We would appreciate a response by the 5th May if possible please*. If you would prefer a paper copy please let Carol know (carol.kyle@hutton.ac.uk). We look forward to your feedback and would also like to take this opportunity to thank you for the help you have already provided.

As greater diversity is generally associated with better resilience, the statements have been framed around the idea that the genetic diversity of potatoes could be managed in a way that increases the resilience of the potato sector i.e. its capacity to absorb shocks, to renew and reorganise itself and to develop despite those shocks. In this context 'management' includes all the decisions and actions that are taken in relation to the genetic diversity and impact its ability to contribute to the resilience of the potato sector.

Politics

[In order to better manage genetic diversity for the resilience of the potato sector...]

	totally agree	agree	neither agree nor disagree	disagree	totally disagree
Industry must set the agenda					
The complexity of the supply chain needs to be recognised					
Non-commercial, heritage varieties need to be conserved in potato collections					
The potato industry needs a single, focused strategy					
The idea that new varieties are important must be questioned					
The government must set the agenda					
The importance of potato collections needs to be recognized					
Consumers must set the agenda					

Economics including markets

[In order to better manage genetic diversity for the resilience of the potato sector...]

	totally agree	agree	neither agree nor disagree	disagree	totally disagree
There needs to be a reduction in the number of potato varieties on the market					
Supermarkets need to play a leading role					
Supermarket buyers need to support more diverse varieties					
Niche varieties are important and need to be promoted					
Correct marketing of new varieties is crucial					
There needs to be recognition that it takes time to build customer relations					
Scottish producers need to break into new markets abroad					
Consumers must set the agenda					
Supermarkets can do little to bring about change					
Scottish breeders need to cater more effectively for the Scottish market					
Retailers need to be better informed to promote new varieties of potatoes					

Social factors including education and information provision

[In order to better manage genetic diversity for the resilience of the potato sector...]

	totally agree	agree	neither agree nor disagree	disagree	totally disagree
The belief that yield is the most important trait must be challenged					
There needs to be better education of consumers about the preparation of potatoes					
Consumers need more information about the nutritional value of potatoes					
There needs to be better education of consumers regarding potato varieties					
Consumers need to be better informed about the shelf-life of potatoes					
Consumers need greater choice of potato varieties					
Consumers have no particular role to play					

Consumer demand for fresh potatoes must increase			
The belief that new varieties are better than old ones must be challenged			
Campaigns cannot patronize consumers by underestimating their knowledge			

Environment including climate, pests and diseases

[In order to better manage genetic diversity for the resilience of the potato sector...]

	totally agree	agree	neither agree nor disagree	disagree	totally disagree
Pesticides are an important line of defence					
There should be more investment into alternatives to pesticides					
The number of commercial varieties suited to the Scottish climate must be increased					
New commercial varieties suited to a future Scottish climate must be developed					
The current emphasis on pest and disease resistance must be down-graded					
More emphasis must be placed on taste when developing new varieties					
Disease resistance in new varieties should be given a higher priority					

Technology

[In order to better manage genetic diversity for the resilience of the potato sector...]

	totally agree	agree	neither agree nor disagree	disagree	totally disagree
Yield should be regarded as more important than taste					
Yield cannot be regarded as more important than disease resistance					
More new varieties must be produced					
New varieties should be bred for multiple traits					
The role of technology is over-rated					
New varieties cannot be regarded as better than old ones					
Heritage varieties need to be given more importance					
Fewer non-commercial varieties should be conserved in potato collections					

Potato breeders need to embrace more technology			
GM technology must be promoted			
The use of gene markers needs to be promoted			
There needs to be more research into alternatives to pesticides			

Further Comments, ideas:

Further information.

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