

Climate change series

Focus on potatoes

Potatoes face considerable challenges from climate change, particularly in relation to water availability. However, English growers can also expect new opportunities and competitive advantages over non-UK growing regions that may be more affected by the changing climate. Growers can take advantage of these opportunities by adapting their practices to the impacts of climate change now, to reduce cost, concern and risk in the future.

KEY POTATO GROWER CONCERNS

- Water availability and flooding
- Pests and disease
- Nitrogen and carbon footprinting affecting supply and costs
- Increased temperature and humidity

CLIMATE CHANGE OPPORTUNITIES FOR POTATO GROWERS

Crop performance

- Warmer weather may enable improved long term control of low temperature diseases e.g. skin spot
- Earlier springs enable earlier planting with reduced frost damage





CLIMATE CHANGE CHALLENGES FOR POTATO GROWERS

Crop performance

- Extreme weather could affect performance (fry quality variability, disease pressure, sprouting date, crop uniformity etc)
- Changing production window may affect market dynamics (e.g. new regions able to produce earlier crops)
- Although frosts will be less common, crops could be damaged by rare frost incidents due to lack of acclimatisation
- Increased canopy development will require greater nitrogen and water inputs
- Soil erosion from heavy downpours may affect ridge planting
- Crops may exhibit 'shut down' in extreme temperatures to reduce evapo-transpiration, reducing yields

Energy/storage

- Increased ventilation, insulation and refrigeration in storage may increase energy costs and lead to building design reassessment

Disease/pests

- Earlier and changing appearance of diseases e.g. blight and dry rot
- Earlier and changing appearance of current and new pests: wireworm, potato cyst nematode and aphids, and possibly larger populations due to lack of predators and warmer weather
- New pests and diseases may require different control strategies e.g. Colorado beetle and *Dickeya dianthicola*
- Pests and diseases thrive in warmer weather, leading to possible increases in populations which are more pesticide resistant e.g. aphids
- Increased weed communities and more rapid flush post-cultivation
- Increased risk of pests and diseases not being eliminated by normal winter conditions e.g. aphids and volunteers

Water

- Reduced water availability may affect bulking rates, yield and common scab control
- Key production areas may need to consider moving to catchments with more water availability

- Longer growing season could enable increased yields
- Longer growing season allows spreading of machinery costs (equipment can now cover more hectares)
- More work days available allow more efficient use of resources
- Increase in yields due to more carbon dioxide available for growth (but will require more nitrogen and water)
- Potential for greater canopy cover (due to increased carbon dioxide and higher temperatures, but requires more nitrogen and soil moisture)

Markets

- Different geographic areas may become suitable for growers potentially creating new market openings
- Competitive advantage over European/Mediterranean growers limited by reduced water availability and higher temperatures

Diseases/pests

- Less fungicide required as drier weather reduces blight

ADAPTATION SUGGESTIONS FOR POTATO GROWERS

- Investigate earlier maturing varieties
- Optimise wet weather conditions to harvest rainwater for use in dry periods
- Understand local CAMS processes and how they influence the availability of water for licensing
- Consider joining abstractor groups to enable better representation with the CAMS process and Environment Agency, and to enable better 'pooling' or trading of water with others
- Consider winter storage of water (in reservoirs) to help with security of supply
- Investigate local abstractor groups – they may help spread costs of water storage
- Plan water storage resources to reduce cost and risk in severe droughts

- Check irrigation systems for efficiency and repair any leaks
- Apply compost to maintain maximum soil moisture, if permitted by crop buyers
- Improve storage facilities and management to help reduce energy requirements: Freephone the British Potato Council for advice: 08000 282111

MITIGATION MEASURES FOR POTATO GROWERS

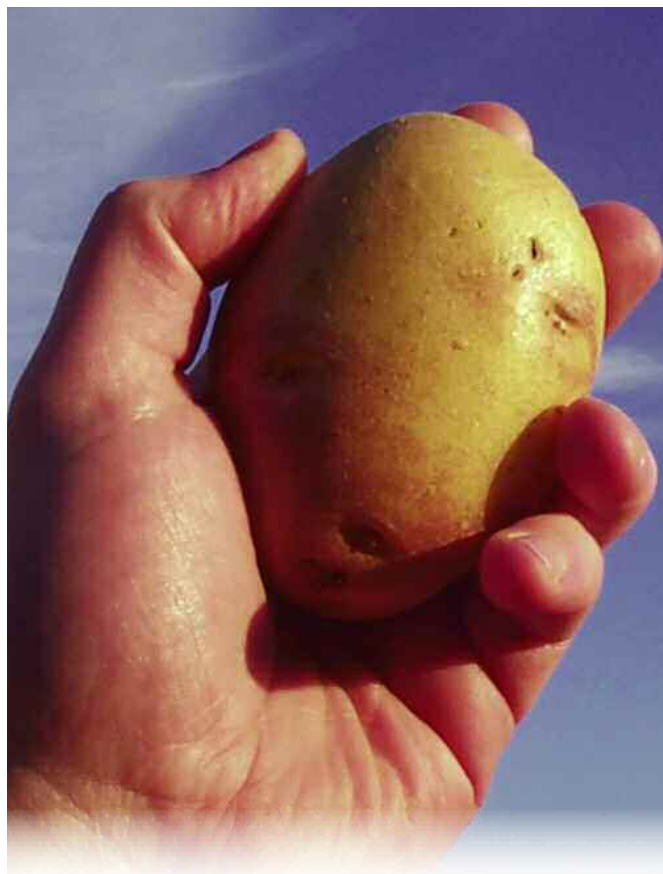
- Investigate genetic research into optimum crop performance and drought tolerance, visit the SCRI website
- Understand carbon footprints to identify farm areas for attention. The CALM calculator helps to benchmark emissions to learn where costs and emissions can be reduced



- Promote and undertake good soil management
- Review storage best practice to save money: uncalibrated probes, poor insulation, inappropriate differentials and defrost settings lead to excessive fridge and fan use
- Consider replacement low-energy fans: evidence suggests they will pay for themselves very quickly
- Follow fertiliser recommendations: industrial fertiliser production has a high energy demand
- Conduct a water audit and schedule irrigation
- Record any changes you make; this will stand you in good stead with auditors and agencies

Please refer to fact sheet 4 for further mitigation measures.

Although some of the impacts might happen to a greater or lesser extent in the short, medium or longer term, it's important to think ahead for the future, especially in relation to issues such as building design and planting regions.



FARMING FUTURES

For news, events, and links to stories about how other farmers are managing climate change on their farms, please visit: www.farmingfutures.org.uk

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