Constraints on UK agricultural and horticultural productivity

INTRODUCTION

The world will need to produce 60% more food by 2050 to feed over 9 billion people, while demand for water is expected to rise by 20% in the agriculture sector alone. To achieve this, the way in which we produce our food needs to be significantly more efficient and sustainable.

To respond to these challenges, the industry will need to grow productivity. This is about more than production alone, it is the rate at which inputs such as labour, energy, land and water are converted into outputs. Key indicators highlight that UK productivity has grown over the last 30 years but the rate of growth is substantially slower than some of our key competitors. If nothing is done to accelerate this growth, British agriculture and horticulture will fall behind in competitiveness.

To accelerate uptake of innovation and R&D, we need to focus more on the critical drivers and constraints on productivity to inform better decisions on farm. Novel technologies are moving rapidly and the potential for these to provide solutions and impact on productivity is growing.

We commissioned this report with ADAS to provide valuable insight into the nature of the constraints on agricultural productivity in the UK. To address these constraints most effectively will require mobilising the UK technical and KE resource in a strategic and targeted way, overcoming a short-term and fragmented approach that has led to increased separation of the research base from the key issues facing the industry.

We would like to thank all those who participated and provided responses to questions online or by telephone interview.

Susannah Bolton
AHDB Director of Knowledge Exchange

CONSTRAINTS IN FARMING

For decades, the UK was at the forefront of horticultural and agricultural productivity, experiencing one of the greatest agricultural revolutions the world has seen. Productivity has continued to increase over the last 30 years, but the rate of increase is not keeping up with key competitors in the EU and elsewhere in the world (e.g. Figure 1 page 3 of Horizon: Driving productivity growth together (January 2018).

The UK is now facing productivity constraints that, as yet, remain unconquered. It is critical that these constraints are addressed so UK agriculture and horticulture can compete in an increasingly global market, and secure its future. This is particularly important in the context of a post-Brexit UK, and uncertainty over future levels of direct support and trade agreements. It is not only physical constraints that are facing the UK. Although predominant, most publicised factors, e.g. yield plateaus, the weather and environmental factors, there are also many contributing structural, behavioural and regulatory constraints. This publication presents the findings of a stakeholder consultation that aimed to understand the constraints considered most limiting by the industry.

The work summarised in this publication was completed with the aid of online and telephone interviews, which were completed by over 50 industry representatives, including agronomists, vets, farmers, advisers, input suppliers, levy bodies and NGOs.

Stakeholders were selected to ensure a wide coverage of industry fields, including arable, beef, dairy, grassland, horticulture, pigs, poultry, sheep and, to a lesser extent, bees, fish and forestry. Their responses have been compiled to highlight the productivity constraints that most need addressing within the industry. In total, there were just over 80 different constraints mentioned by individual industry representatives; these were broadly classed into eight prevalent categories: knowledge (15% of responses), markets (11%), soil (10%), resistance (8%), the availability of WPD controls and medicines (7%), produce quality and waste (7%), nutrition (7%) and varietal and genetic constraints (7%).

Figure 1 below shows the proportion of responses that identified the top 14 constraints from the survey of 50 industry representatives. Figure 2 shows more detail and how the constraints have been grouped.

The responses were aggregated in a number of ways to highlight priorities. The constraints were divided between four overarching categories: business structure, knowledge, effective management and access to resources. These were then subdivided into two or three themes within each category. It was also clear there are many interrelationships between constraints, which could also be classified as: structural, technical, behavioural or regulatory. Figure 2 includes zonal categories and themes and the classification through coloured words. When considering the actions required and the target audiences, this became clearer when presented by the structural, technical, behavioural and regulatory classification. This, together with mapping back to the relevant constraint category, forms the basis of this publication.

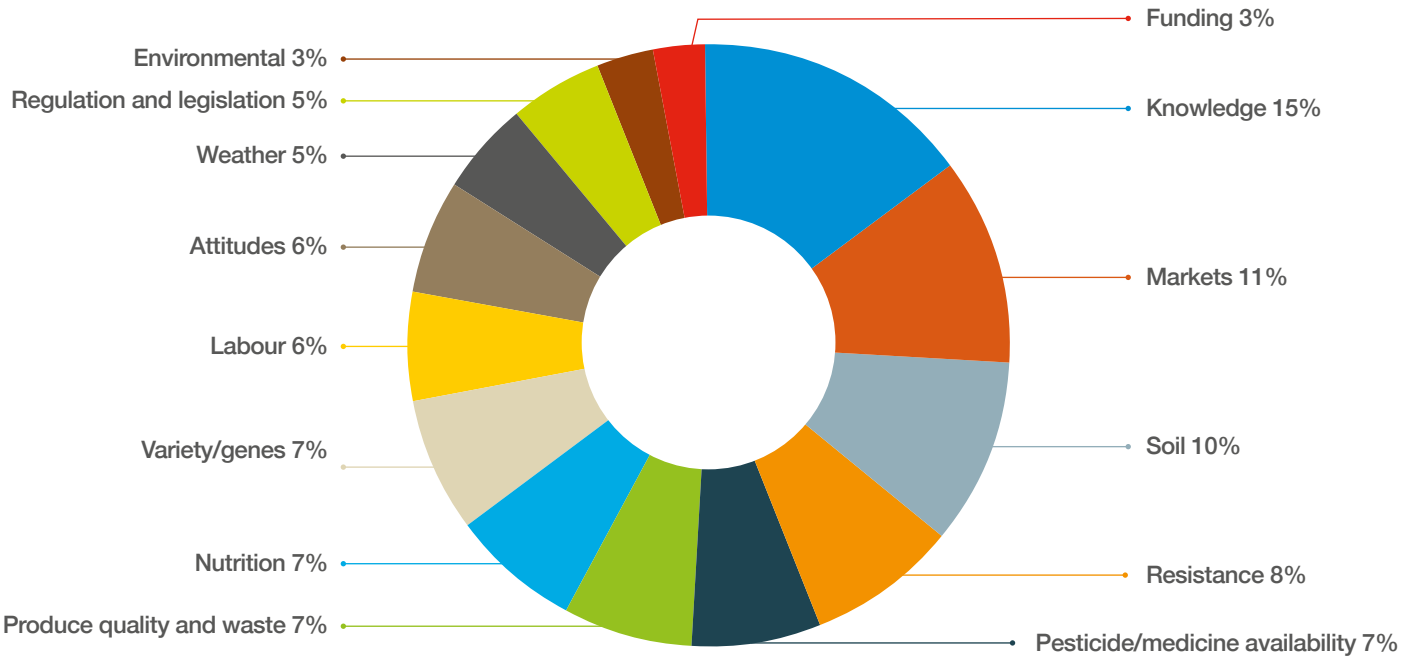

Figure 1. **Proportion of responses that were identified as a constraint**

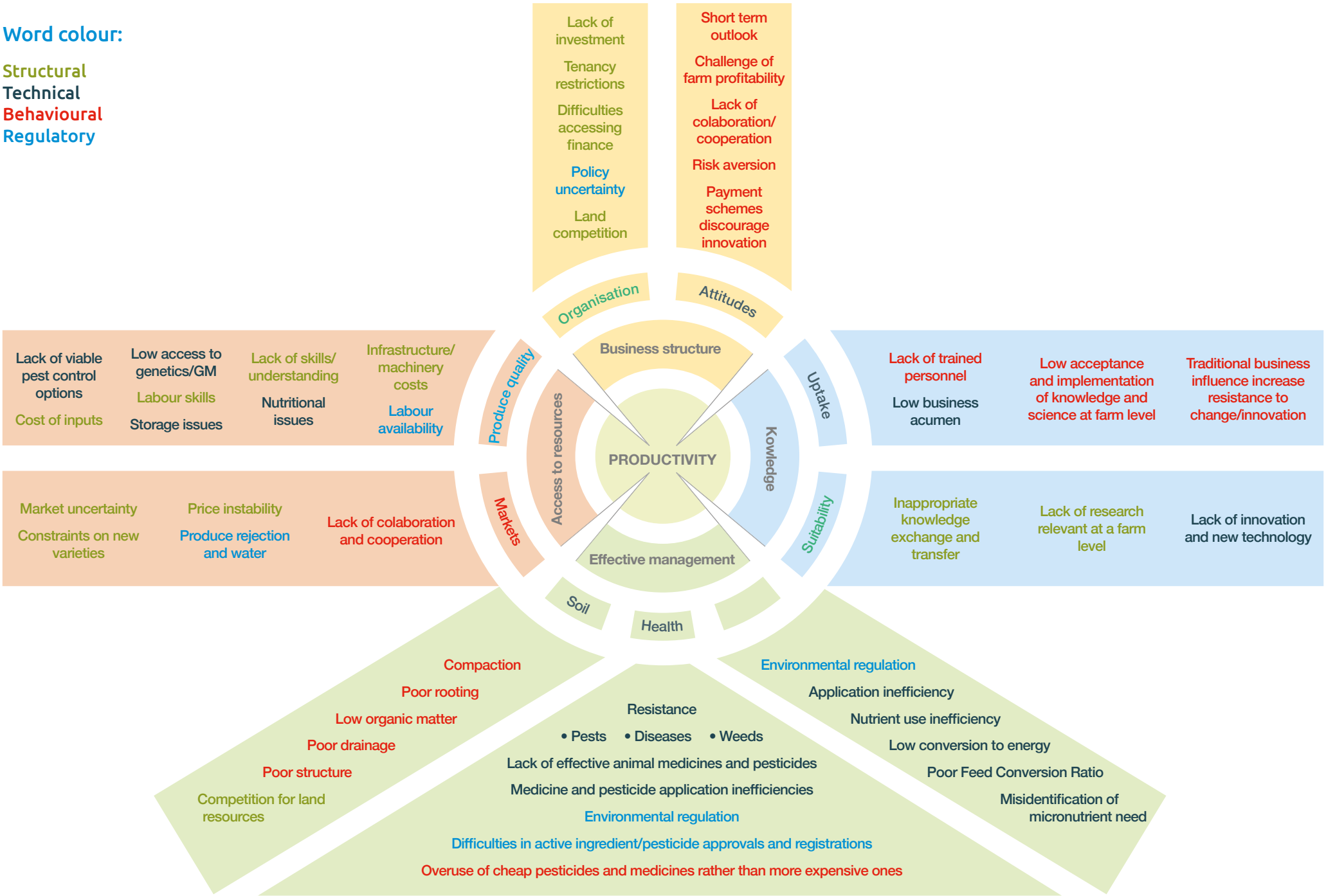

Figure 2. **Constraints identified and classification**

STRUCTURAL CONSTRAINTS

A number of structural constraints were identified by respondents that could represent important barriers to overcome and should be priorities to address, ahead of others.

Market access, access to finance, land availability and price, investment opportunities and tenancy restrictions could prove a strong barrier to overcoming many technical, behavioural and regulatory constraints. These need to be tackled by joined-up campaigns and raising awareness of the producer, the consumer, retailers and politicians.

Constraint	Business structure	Knowledge	Effective management	Access to resources	Next steps
Competition for land and tenancy restrictions	X		X		Encourage collaboration to raise awareness of the importance of structural constraints being addressed **Target audience:** relevant parties such as farmer member organisations, MPs, regulatory bodies, producers, retailers and consumers
Lack of investment and difficulties accessing finance	X				
Knowledge exchange is disconnected, unfocused and not readily implementable		X			
Lack of relevant farm-level research		X			
Lack of skills and understanding		X		X	
High cost of inputs as well as infrastructure and machinery				X	
Constraints on new varieties				X	
Market uncertainty and price instability				X	

TECHNICAL CONSTRAINTS

Overcoming technical constraints relies on coordination of research and knowledge exchange landscape to deliver outcomes that address these issues.

The success of uptake and implementation of knowledge is often interdependent with behavioural constraints.

Constraint	Business structure	Knowledge	Effective management	Access to resources	Next steps
Lack of innovation and new technology		X			Stimulate farmer-centric approach for identifying knowledge gaps Increase sharing of existing knowledge by developing portals/ forums/research platforms Assess cost-benefit analysis to ensure that research delivers return on investment Develop problem-led research programmes to address knowledge gaps Find ways to overcome traditional behavioural barriers and responses to risk and change Run training/on farm implementation workshops **Target audience:** AHDB own activity, partnerships with industry and government, farmers and growers
Low business acumen		X			
Lack of viable pest control options				X	
Low access to genetics/GM		X		X	
Soil health (erosion and compaction, organic matter content, structure and drainage)			X		
Animal health and nutrition (reduce abattoir waste, pest control, genetics and feed conversion ratios)			X		
Plant health and nutrition (reduce waste, pest control, application, genetics and nutrient efficiency)			X		

BEHAVIOURAL CONSTRAINTS

Tradition, attitudes, beliefs and resistance to change can be barriers to the successful implementation of knowledge. Producers must be able to trust advice sources and have confidence that knowledge is relevant and robust so implementation of knowledge will give the expected productivity increase.

Constraint	Business structure	Knowledge	Effective management	Access to resources	Next steps
Lack of farm profitability leads to short-term outlook and risk aversion	X				Ensure trust between advice sources and producers Develop free and impartial modes of transferring knowledge and encouraging uptake Encourage and enable producers to set up robust on-farm testing to evaluate innovations under their own conditions and have confidence in outcomes Provide relevant workshops, training and information Improve skills of on-farm advisers to better understand and overcome behavioural barriers **Target audience:** AHDB activity, training providers, advisory companies and organisations
Support payment schemes discourage innovation	X				
Lack of collaboration and cooperation	X			X	
Lack of trained personnel		X			
Low acceptance and implementation of knowledge and science at farm level		X			
Traditional business influences increase resistance to change, innovation and technology		X			
Overuse of cheap pesticides and medicines			X		

REGULATORY CONSTRAINTS

Decisions made by governing bodies on legislation and regulation can have major impacts on productivity at farm level. These include availability of pesticides and access to skilled labour.

This needs to be tackled by working collaboratively to highlight critical issues in agriculture to governments, regulators and supply chains.

Constraint	Business structure	Knowledge	Effective management	Access to resources	Next steps
Strict retail guidelines result in rejection and waste up to 50% in some crops		X		X	AHDB can provide evidence based on impacts and research for new solutions, but cannot alone change regulation AHDB will work with others to highlight critical issues and bring these to the attention of government, regulators and supply chains **Target audience:** government, regulators, farming organisations and trade bodies
Regulations make pest control more difficult by reducing availability of effective control options			X		
Environmental regulations, while necessary, can limit productivity			X		
Policy uncertainty hindering long-term planning	X				
Access to skilled labour due to uncertainty and exchange rates resulting in increased costs of production	X			X	

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