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SEIZING THE OPPORTUNITIES: A POST-BREXIT STRATEGY FOR UK AGRICULTURE

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ABSTRACT

UK agriculture is on the cusp of far reaching change. Farm businesses are entering a new era of reassigned support and the open trading environment captured by the term 'Global Britain'. Despite reservations by farm leaders and many associated with the food industry, there are grounds for believing that UK farming and the agri-food industry in general have the potential to prosper in this new era. Radical change in the support and trading environment calls for a radical response. This paper argues that continuing to supply consumers with the experience attributes of taste, convenience and affordable prices will not be sufficient. Competitiveness will progressively demand greater emphasis on meeting growing demands for the credence attributes embodied in ethical production systems. These credence attributes overwhelmingly originate at the farming stage of the food chain and therefore in rising to the challenge of improving competitiveness, farm businesses and their food manufacturing customers must make a reality of closer vertical relationships as well as embracing the fruits of agri-biotechnology and precision farming. The evidence suggests that close, trusting, vertical relationships between farmers and their food manufacturing customers are superior for leveraging competitive advantage from distinctive credence capabilities. This paper argues that the UK agri-food chain must attach greater urgency and effort to such relationships in preparation for the challenge of the post-Brexit trading environment.

Keywords: Brexit, Agricultural policy, Free Trade Agreements, Agri-food, Supply chain, Vertical relationships, Sustainable Intensification, Precision farming.

ABBREVIATIONS

EU: European Union; FTA: Free Trade Agreement; GHG: Green House Gas; SI: Sustainable intensification.

INTRODUCTION

In a previous article (Rickard, 2016) written several months before the UK's referendum I maintained that in the event of a vote to leave the EU, UK agricultural policy reform would be rapid and give primacy to productivity and competitiveness. I further argued that the post-Brexit trading environment would be of critical importance. On the 31st January 2020 the UK formally left the EU, and with the ending of a transitional period, at the start of 2021 British farmers will enter a new era involving radical changes to support and trade policies. Conditioned by the Agriculture Act 2020, support policy reform will be rapid removing, over seven years, direct farm payments and introducing payments for the delivery of public goods. But the Act's main purpose is to provide enabling powers for Ministers, and it contains little detail relating to improving productivity and

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competitiveness.

That henceforth, farm businesses will have relied more heavily on market returns might generally be viewed as a positive step. That said, the profitability and structure of the agricultural industry will also be strongly influenced by the post-Br exit trading environment (Andersons, 2019). The government's post referendum commitment to a close trading relationship with the EU has now changed to seeking a FTA 'at least as good as the EU's recent trade agreement with Canada'[House of Lords, 2020]. This shift into a more open trading environment, captured by the official phrase 'Global Britain, reflects the government's desire to recalibrate the UK's relationships with the world's three major economic and geopolitical hubs – North America, Asia-Pacific, and Europe (Booth & Walsh, 2020). Consequently, the UK-EU trading relationship is set to be just one of a number of FTAs with third countries and trade blocs. A feature of larger countries targeted for a FTA is that they are predominately net exporters of agricultural products e.g. USA, against which, high-cost UK producer lack competitiveness (AHDB, 2017; AHDB, 2019). The prospect of FTAs with the world's larger scale agricultural exporters provoked high profile campaigns by farmers' leaders and a petition containing more than a million signatures, demanding Parliament make it a legal requirement for food imports to meet UK standards. However, attempts to amend the Act were heavily defeated; the government arguing successfully that it could not allow its hands to be tied in trade negotiations.

This paper sets out a framework designed to enable UK agricultural producers to mitigate the risks of operating in a more open trading environment while taking advantage of the opportunities afforded. What follows, consists of three sections. The first, identifies three key challenges facing UK food producers and in particular the importance of becoming more internationally competitive. The second section explores behaviors and techniques critical for success in rising to the challenges and the third provides a brief conclusion.

THREE CHALLENGES

In advance of publishing its Agricultural Bill, the government stated that its priority was a 'productive, competitive farming sector with high environmental and animal welfare standards (Defra, 2020). That said, the agri-food industry faces the threat – implicit in the campaigns to limit food imports –that in future the UK will import more of its food needs. It follows from the government's refusal to legislate for imported food standards that a 'protectionist' response is no longer an option. Rather, the emphasis must be to raise significantly the industry's international competitiveness.

The starting point for analyzing competitiveness is the consumer. In developed countries, traditional demands for a wide choice of high quality, safe food at affordable prices are being augmented by government initiatives (Mintel, 2020) to encourage healthy eating and increasing attachment to credence attributes (Fernqvist & Ekelund, 2014) – frequently grouped under the broad heading of ethical production. Categories of credence preferences include provenance which may reflect trust in delivery of other credence attributes e.g. production without harm to the climate (ComRes, 2017), the environment or animal welfare (Lloyd's Register, 2019). Significantly, credence attributes are also becoming a source of differentiating value for food products amongst the middle classes in emerging countries (Saunders, Tait, Guenther & Dalziel, 2015).

Productivity growth is a necessary condition for affordable food prices and thereby competitiveness. Over the post-war period agricultural industries in many countries displayed major productivity gains but, in developed nations, the trend has slowed in recent years (Fuglie, 2018); particularly in the UK (AHDB, 2018). That said, there is a wide range in performance across all sectors of the UK agriculture. **Table 1** shows average costs and incomes for English farms in the medium and top quartile (best) performance categories.

Table 1. Comparative Farm Performance in England.

	Cereals		General cropping		Dairying		Grazing livestock	
	Medium (1)	**Best (2)**	**Medium (3)**	**Best (4)**	**Medium (5)**	**Best (6)**	**Medium (7)**	**Best (8)**
Revenue	240,249	261,122	468,012	537,453	620,823	686,368	83,565	101,959
Variable costs	102,113	98,856	210,335	190,270	345,204	333,879	51,455	51,123
Ratio: VC/R	0.43	0.38	0.45	0.35	0.56	0.49	0.62	0.50
Gross Margin	138,316	162,266	257,677	347,183	275,619	352,489	32,110	50,836
Fixed costs	133,973	101,398	223,125	227,752	255,876	221,247	51,401	51,824
Ratio: FC/R	0.56	0.39	0.48	0.42	0.41	0.32	0.62	0.51
Net income	**4,343**	**36,255**	**34,552**	**119,431**	**19,743**	**131,062**	**-19,291**	**-988**
Payments[1]	42,613	50,839	48,094	69,872	35,466	38,624	18,267	28,076
Income	**46,956**	**111,707**	**82,646**	**189,303**	**55,209**	**169,686**	**-1,024**	**27,088**

Farm Business Survey, England 2018/19
[1]Payments includes basic payments plus income from environmental works.

The foregoing suggests three challenges. First, the UK agri-food industry must intensify its commitment to raising standards. Studies show that adherence to the highest standards of food safety not only prevent most food borne illness (Rezaei A, 2018), but also are rewarded by consumer loyalty (KPMG, 2019). A second challenge is to steadily increase the ecological sustainability of farming operations i.e. in becoming more productive agriculture must not only reduce pollution, and in particular GHG emissions, but also its consumption of scarce natural capital including biodiversity losses. The third challenge is to improve the agri-food industry's internationally competitiveness. This must be based on food products, not agricultural commodities as the UK agricultural industry's cost base – elevated by land prices and standards – is too high to compete generally on global commodity markets. Raising competitiveness will expand global sales while imposing a hurdle for food imports thereby improving the food trade balance, self-sufficiency and food security. This paper unequivocally views international competitiveness as the priority; hence, accompanying sustainability and standards objectives should be delivered in ways that support and augment the primary objective.

CRITICAL SUCCESS FACTORS

After adjusting for inflation, UK food consumption is growing at 0.7 per cent, per year. In contrast, demand for food products from middle class consumers in emerging nations is rising at a rate of 5 per cent, per year (Senauer & Goetz, 2003) reflecting the rapid growth of middle-class consumers in emerging nations which is forecast to more than double to around 4 billion by 2030 (Kharas, 2017). If UK food producers are to take advantage of the export opportunities offered by these dynamic markets, their products will need to be identified by consumers with their growing demand for distinctive products whose differentiating values extend beyond experience attributes e.g. taste, convenience and value, to credence attributes such provenance, safety and ethical production. However, as credence attributes are largely delivered at the farming stage of the food chain this necessitates greater transparency and traceability in the production of food products. The implication is that international competitiveness for UK food products must be supply chain based in order to enable the farm sector's credence attributes to achieve the prominence needed to contribute critically to distinctive, value-added food products.

Whether or not a food manufacturer seeks multiple or an exclusive relationship – which might be a cooperative – for its agricultural inputs to harness distinctive upstream capabilities, the level of collaboration sought should be that of a vertical relationship. Such relationships have in common a long-term business partnership where the parties are committed to jointly delivering better quality and/or value e.g. improved logistics. These advantages are strengthened with the farmer-manufacturer interdependence inherent in leveraging distinctive credence capabilities through the sharing of information, joint idiosyncratic learning and undertaking relationship specific investments. Building and sustaining a successful vertical alliance is difficult, the more so as it is impossible to contract, specify, or accurately measure every detail of a complex relationship. Trust is therefore a vital ingredient motivating partners to go beyond contractual terms for the benefit of the relationship (Frydlinger, Hart & Vitasek, 2019), and in doing so they significantly improve traceability (Aung & Chang, 2014) and thereby competitive advantage (Simatupang, Hun & Sridharan, 2002).

An important credence attribute is the ability to produce food without damaging forests and wildlife habitats. In essence, land productivity growth i.e. intensification, will need to be a continuing feature of agricultural production. Moreover, intensification must be accompanied by reducing the industry's demands for other increasingly scarce natural resources e.g. fresh water, while also diminishing pollution, particularly GHG emissions, and reversing biodiversity loss (World Resource Institute, 2019). Simultaneously raising a farm's productivity and environmental services is generally defined as sustainable intensification (SI), a production process that amounts to a dramatic increase in natural resource productivity i.e. less units of scarce natural resources per unit of output (Garnett, et al., 2013) and is now widely adopted by scientists as a guiding principle (Tittonell, 2014). This may not involve increased output but if the UK's agri-food industry is to respond positively to the opportunities afforded by global food markets and the challenge of improving self-sufficiency, SI must go hand-in-hand with increased output.

If SI offers UK agriculture, productivity and credence benefits, it naturally raises the question how it might be achieved? The process is science led; embracing a wide range of disciplines including plant and animal breeding, agro-ecology, integrated pest management, agricultural and digital engineering. These disciplines can be placed under two broad technologies:

- Agri-biotechnology, essentially the application of new knowledge in the areas of genetics and nutrition to improve the health, resilience and productivity of crops and animals; and
- Precision technology, whereby engineering and digital technologies are fused to minimize the use and waste of farm inputs e.g. crop protection products and animal feeds.

Agri-biotechnology advances the traditional disciplines of biology, genetics, physiology, and biochemistry, long history of contributing to the productivity growth, higher quality and safety of agricultural production. In the case of plants, biotechnology, by raising and protecting yields e.g. by improving resistance to pests, diseases and a biotic stress, reduces the industry’s demand for land. As regards livestock, biotechnology aids selective breeding producing unparalleled precision in delivering animals with desired traits such as fecundity, feed conversion as well as resistance to disease and stress. Welfare is further enhanced by the application of biotechnology to animal feeds and feeding practices resulting not only in improved nutrition and digestibility but also a widely recognized means of reducing livestock GHG emissions (Herrero, Thornton, Power, Bogard & Remans, 2016).

If the benefits of agri-biotechnological advances are to be maximized they must be accompanied by the capability to farm with ever-greater precision. Conventional agricultural practices have rarely achieved optimal efficiency in terms of maximal yield or minimal inputs. However, advances in precision (digital) technologies offer the prospect of not only shifting productivity, sustainability and standards onto higher performance trajectories but also routinely achieving optimal efficiency in resource use by reducing the waste (Schimmelpfennig, 2018). Precision operations positively benefit ecological sustainability by enabling the limitation of field operations to site-specific temporal needs thereby minimizing polluting run-offs and GHG emissions (Balafoutis, Constantinos, Patel & Rajnikant, 2017) while within livestock systems aiding GHG mitigation (de Boer J, 2011).

Precision farming is an information intense disruptive technology. As with agri-biotechnology, it is in its infancy and technological advances in areas such as data management, sensing, optical recognition and robotics will fundamentally change the nature and economics of farming in the coming years. But technological advances are not sufficient. The phenomenon known as the ‘yield-gap’ – the fact that at the farm level improvements fall short of the potential offered by a technological advance – presents a challenge. Reducing the ‘yield gap’ must also be a priority and random events aside, e.g. the weather, this comes down to improving technical and managerial capabilities at the farm level.

Adoption of any new technology depends on potential users believing that it will be profitable and/or achieve some other objective e.g. reduce GHG emissions, though also relevant is the ability of businesses to fund the necessary investment. Although agri-biotechnological advances are scale neutral, when it comes to precision farming many of the advances involve expensive plant and/or machinery.

Larger scale farms have an innate advantage in the purchase of expensive plant and machinery (Fernandez-Cornejo, Daberkow & McBride, 2001); not only do they generally have better access to investment funds but also a larger output over which to spread the cost. Funding, however, is not the only constraint. Precision technologies necessitate new farm level skills e.g. the ability to collect, analyze and act upon in real time large data sets, where a farmer's education, experience and attitude are identified as significant influences (Tey & Brindal, 2012). UK agriculture needs a transformative, orderly learning process to develop skills and capabilities ranging from the management of more sophisticated, larger scale enterprises to the efficient collection and use of data and artificial intelligence. Also, given the importance of vertical relationships farmers and their downstream customers must be aided in developing the people skills e.g. emotional intelligence for communication, empathy and trust that such relationships ultimately depend on.

CONCLUSION

This paper has argued that the UK's agricultural industry's reputation for high standards provides an opportunity for the agri-food chain to improve its international competitiveness by emphasizing credence attributes as the basis for product quality and differentiation. It has further argued that in order to take full advantage of globally recognized upstream standards and credence attributes supply chains must invest in behaviors and assets to deliver trusting, vertical relationships. Central to credence attributes are consumers' demands for ethical production and in order to meet these demands while bearing down on production costs, farm businesses must embed the techniques of sustainable intensification in their production systems. Sustainable intensification is dependent on the health and effectiveness of agricultural research systems. The UK is home to universities and research institutes who can boast global reputations in areas ranging from crop and animal science to sensors and artificial intelligence. The UK agri-food industry is therefore well placed to seize the potential opportunities offered by 'Global Britain.' Government support is important but the future direction and success of the agri-food chain rests ultimately with the behavior of industry participants.

REFERENCES

Andersons (2019). Introduction to Outlook 2020, Available online at: https://theandersonscentre.co.uk/wp-content/uploads/2019/12/Outlook2020-Final.pdf

AHDB (2017). Meat and dairy- Our prospects in the global marketplace. Available online at: https://projectblue.blob.core.windows.net/media/Default/Market%20Insight/Horizon_MeatDairy_2018-01-31.pdf

AHDB (2019). Brexit prospects for UK cereals and oilseeds trade. Available online at: https://projectblue.blob.core.windows.net/media/Default/Imported%20Publication%20Docs/Horizon/Horizon_Cereals_Bitesize_Brexit_20190417.pdf

Aung, M.M. & Chang, Y.S. (2014). Traceability in a food supply chain: Safety and quality perspectives. *Food Control 39*: 172-184.

AHDB, (2018). Driving Productivity Growth Together. Available online at: https://projectblue.blob.core.windows.net/media/Default/Market%20Insight/Horizon_Driving%20Productivity_Jan2018.pdf

Balafoutis, A., Beck, B., Spyros, F., Jurgen, V., der Wal TV. et al. (2017). Precision Agriculture Technologies Positively Contributing to GHG Emissions Mitigation, Farm Productivity and Economics. *Sustainability 9(8):* 1339.

Booth, S., & Walsh, D. (2020). The art of a US-UK trade deal: Realising the opportunities and overcoming the challenges. Available online at: https://policyexchange.org.uk/wp-content/uploads/The-art-of-a-US-UK-trade-deal.pdf

Caroline, S., Peter, T., Meike, G., & Dalziel, P.C. (2015). Consumer preferences in developing and developed country markets of relevance to New Zealand exporters. Available online at:

file:///C:/Users/user1/Downloads/173.pdf

ComRes. (2017). Public attitudes to climatic shocks and their interaction with the food system. Available online at: file:///C:/Users/user1/Downloads/public-attitudes-climatic-shocks-interaction-food-system.pdf

DEFRA. (2020). Farming for the Future: Policy and progress update. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/868041/future-farming-policy-update1.pdf

de Boer, I.J.M., Cederberg, C., Eady, S., Gollnow, S., Kristensen, T., et al. (2011). Greenhouse gas mitigation in animal production: towards an integrated life cycle sustainability assessment, *Current Opinion in Environmental Sustainability 3*(5): 423-431.

Fernandez-Cornejo, J., Daberkow, S., & McBride, W.D. (2001). Decomposing the size effect on the adoption of innovations: Agrobiotechnology and precision agriculture. Journal of *Agrobiotechnology Management & Economics 4(2)*: 124-136.

Fernqvist, F., & Ekelund, L. (2014). Credence and the effect on consumer liking of food – A review. *Food Quality and Preference 32:* 340-353.

Frydlinger, D., Hart, O., & Vitasek, K. (2019). A New Approach to Contracts. *Harvard business review 97*(5): 116-125.

Fuglie, K.O. (2018). Is agricultural productivity slowing? *Global Food Security* 17.

Garnett, T., Appleby M.C., Balmford A., Bateman I.J., Benton T.G., et al. (2013). Sustainable Intensification in Agriculture: Premises and Policies. *Policy Forum 341:* 33-34.

Herrero, M., Henderson, B., Havlik, P., Thorton, P.K., Conant, R.T., et al. (2016). Greenhouse gas mitigation potentials in the livestock sector. *Nature Climate Change 6*(5): 452-461.

House of Lords. (2020). Report pursuant to section 29 of the European Union (Withdrawal Agreement) Act 2020: Council Decision authorizing the opening of negotiations with the United Kingdom of Great Britain and Northern Ireland for a new partnership agreement. Available online at: https://publications.parliament.uk/pa/ld5801/ldselect/ldeucom/32/32.pdf

Kharas, H. (2017). The Unprecedented Expansion of the Global Middle Class: an update. Available online at: https://www.brookings.edu/wp-content/uploads/2017/02/global_20170228_global-middleclass.pdf

KPMG. (2019). The Truth about Customer Loyalty: The world's consumers reveal what keeps them coming back. Available online at: https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/11/customer-loyalty report.pdf

Lloyd's Register. (2019). UK Food Trends: A Snapshot in Time. The Modern Food Shopper Revealed. Available online at: https://www.rqa-group.com/wp-content/uploads/2019/12/UkFoodTrends_A4_Portrait_v8_Pages.pdf

Mintel. (2020). Attitudes towards health eating-UK. Available online at: https://reports.mintel.com/display/987918/

Rezaei, A., (2018). Food safety: The farmer first health paradigm. *One Health 5*: 69-73.

Sean, R. (2016). Brexit: ultimately it's trade that matters. *International Journal of Agricultural Management 5(1):* 1-3.

Senauer, B., & Goetz, L. (2003). The Growing Middle Class in Developing Countries and the Market for High-Value Food Products. Available online at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.535.5007&rep=rep1&type=pdf

Simatupang, T., Hun, B., & Sridharan, R. (2002). The knowledge of coordination for supply chain integration. *Business Process Management Journal 8*(3): 289-308.

Schimmelpfennig, D. (2018). Crop Production Costs, Profits, and Ecosystem Stewardship with Precision Agriculture. *Journal of Agricultural and Applied Economics 50*(1): 81-103.

Searchinger, T., Waite, R., Hanson, C., Ranganathan, J., Dumas, P., et al. (2019). Creating a Sustainable Food Future: A Menu of Solutions to Feed Nearly 10 Billion People by 2050. https://files.wri.org/s3fs-public/creating-sustainable-food-future_2.pdf

Tey, Y., & Brindal, M. (2012). Factors influencing the adoption of precision agricultural technologies: a review for policy implications. *Precision Agriculture 13*(6): 713-730.

Tittonell, P. (2014). Ecological intensification of agriculture- sustainable by nature. *Current Opinion in Environmental Sustainability 8*: 53-61.