



**HADLOW
COLLEGE**

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Hadlow Roundtable

Alternative farming: Is a holistic approach to farming methods the way to achieve a sustainable food supply for the future?

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Introduction

- The Context – what is the industry dealing with?

The global population is predicted to increase to 9.8 billion by 2050, meaning total food requirements are estimated to expand by 100%.¹ With urban environments reaching maximum capacity and large rural areas now viewed as unproductive growing spaces, the globe's current food system is buckling under such enormous pressure.

Attention needs to be paid to how this challenge is impacting the current status of agroecosystems, food security, long term sustainability and climate change, particularly the effects on the UK farming industry. With the UK only supplying half of its consumable food to its own population, does more emphasis need to be placed on domestic, alternative farming?²

Not only is there a demand to feed the planet, food must be grown in a sustainable, ecologically-friendly way so the health of the globe and citizens is not compromised. But what farming approaches can be taken to ensure food is grown in the most efficient and ethical manner? Is alternative farming the future of food production?

- The Solutions

Sustainability and food security are two of the most important factors facing future populations. The globe must feed itself but cannot endanger itself in the process. Climate change is perhaps the biggest enigma looking forward into the future, and it is defining the way food is produced and sold. As such, the farming industry is seeking new avenues to cultivate food, turning towards alternative, more technologically-advanced growing processes to ensure food is grown efficiently and sustainably.

These new territories, however, need rigorous questioning and inspection. This Hadlow Roundtable will explore the following areas:

- What impact can alternative farming methods really have?
- Is a holistic approach enough to cope with the food demand?
- What are the challenges or benefits of techniques such as agroecology and hydroponics for the future of food production?
- How will the industry ensure farmers are equipped with the skills and knowledge to face current and future challenges?

¹ (U.S. Census Bureau 2008)

² The UK supplied under half (49%) of food consumed in the UK, according to 2016 National Statistics. The remainder is from EU countries (30%), Africa (5%), and Asia, North and South America (4%).

The Roundtable

Part 1

The first part of the Hadlow Roundtable discussed the actions the industry must take to drive change; in particular, adopting more eco-friendly approaches to make the entire farming spectrum more sustainable. In this document, viewpoints from the roundtable will be shared, to highlight the key steps the industry might take to consolidate a better farming future.

- **Potential farming technologies to feed growing populations**

In order to be sustainable in the UK, the farming industry has to look at how it can achieve maximum output with minimum input through alternative farming approaches. The industry has a new generation of farmers to facilitate these alternative practices; it has a huge pool of talent emerging from UK graduates who will go on to define the future of farming through their innovative agricultural research.

But there are several alternative farming technologies which can be used to feed populations. Hydroponics is a sustainable, alternative growth system providing a greater yield in smaller, compact areas. With crops bathed in a nutrient-rich solution or a mist, this closed, self-sufficient system ensures the nutrient solution is cleaned and then fed back into the crop in a circular system. This system provides a high level of growth flexibility; in urban areas hydroponics can be implemented in disused car parks or underground.

Vertical walls are also efficient ways to grow, however these need to be developed. To cultivate plants in this way, questions must be asked about the fossil energy needed to ensure growth, plus the value of what will be grown. The industry is trying to reduce this amount of fossil energy through using sustainable systems such as hydroponics and aquaponics but the efficiency needs adjusting and perfecting.

Algae protein is another example of an alternative protein source. This kind of food technology is growing in momentum, where it has the potential to provide a long-term solution for fish production in the UK. Although this is an undeniable opportunity for aquaculture, and a lot of research has been conducted, it hasn't yet been seized and maximised to its full potential.

Although these advancements will undoubtedly improve food production, the farming world must look at the bigger picture. The 17 Sustainability Development Goals (SDGs) published by the United Nations (UN) in 2017 is a useful guide, particularly as the second goal lobbies for food security and a more sustainable agriculture system.

- **Sustainable farming approaches in urban and rural environments**

Urban food production is a trend in less developed nations, whereas in the UK the seeds are only just being planted for improved growing environments in urban spaces. Traditionally, the UK has relied on rural food production, however with the economies of space at the forefront of sustainability goals, urban farming techniques are now being recognised as a key element of farming's future.

Essentially, to maximise sustainable food production there needs to be more of a focus on urban farming. Large spaces can be a drain on resources and are thus incredibly unproductive. Rural food production in industrialised nations is naturally dependent on fossil fuels. To combat this, the pressure will fall on F3 farming which, in basic terms, is fossil-free farming designed to keep adverse climate change at bay and prevent soil depletion and water scarcity. F3 farming is a far more sustainable and modern method of agriculture which is far healthier for the planet.

The question with F3 farming is how to implement and design it. What does an F3 farm look like? Will smarter technologies be introduced? Or a return to more labour-intensive farming approaches?

In the last century, farming was more concerned with maximising space to accommodate large machinery. In this century, and indeed going forward, the natural route is to capitalise on modern technologies to not only consolidate this important transition to F3 farming, but to make use of compact spaces. The industry must take an agroecological perspective here, that is, reconciling current agricultural systems with current eco-systems to make the farming system more sustainable. This in turn, will make the farming system healthier for the planet.

The agriculture industry finally has the technology to make farming more efficient, it is just a case of implementing it in order to maximise sustainability.

- Food security in a post-Brexit society

Naturally, the current concern is how farming will change in a post-Brexit society. In lieu of the UK's decision to leave the EU, now is the best time to turn attention to domestic farming, not only to increase food productivity in urban zones, but to give UK farmers a more robust market to trade and grow crops in.

With the recession affecting the way people buy food, what is the solution for farmers in a post-recession, post-Brexit world? And how does the industry ensure these solutions are healthy for the environment and the economy?

Moreover, what is an alternative to CAP (Common Agriculture Policy)? How does the farming industry ensure subsidies are for public benefit and for the industry's benefit?

Subsidising UK farmers is not a government priority currently. Although the current food production system is in place, it is effectively only incentivising the UK supermarkets, which is inevitably impacting the farming world's security.

Commercial supermarkets offer cheaper food and that is why the majority of UK food is imported from the continent rather than grown at home.

The industry used to have the Agricultural Development and Advisory Service (ADAS) paid for by the taxpayer, which was a massive asset to farmers. However, since this is no longer an option, the farming world needs to re-examine whether it still requires public funding.

With this in mind, it is increasingly important for the industry to continually examine how it acts in the nation's interest; it must review the way it accesses and produces food and must answer the question: are farmers producing what sells or what will feed people? At the moment, it could be argued that long-term interests are made on very short-term, quick and unsustainable foundations. For instance, high production of rapeseed crop is important for short-term fuel needs, but growing food for wider domestic consumption is a larger, more complex process. A farmer has to make money, but is this conflicting with sustainable growing? The current system is precariously balanced between making capital and producing food to feed the people. One will outweigh the other if action is not taken.

Indeed, big companies may have more control over public food than national governments. They can hold the industry hostage, purely by cutting off their supply chains. This will cause the industry, and the public, to run into food shortage.

The UK's food production system is at the brink of a seismic collapse. The current system only has 50 year's harvest left to feed the UK, a result of not taking proper care of top-soil.

Organic matter has been steadily eroded and completely jeopardised by lack of efficient soil management. Domestic food production is in a real crisis which will not be resolved without a complete shift to more sustainable methods.

- **Embedding innovation into current systems to improve accessibility across the board**

How achievable are these alternative farming methods for the small-scale producer further down the farming chain?

There is a real dichotomy between good food production and commodification. There is a divide between what must be grown for food consumption and what is grown to make money. This in turn creates a sub-divide between large and small-scale producers.

Better agrobiodiversity needs to be adopted and implemented across the spectrum. Larger farming corporations can grow specific seeds, can then endorse certain production methods for these seeds, and can then sell pesticides for these seeds. Small-scale producers cannot compete at this unsustainable level; that is why there is a strong pull towards reclaiming seed sovereignty so that people know where their food is coming from. For instance, the A Team Foundation is working with the Gaia Foundation on this seed-saving initiative for small-scale farmers. This platform will help track stock levels and will educate small-farmers on their seeds.

Although there is a well-educated farmer base, whose innovation is at the forefront of farming's future, one of the challenges is to ensure smaller producers keep pace with

these advances. In order to make a more sustainable and commercially-viable agroecology, the industry needs to ensure these innovations are accessible to smaller producers, whether that be through subsidies or business opportunities.

Agrobusiness needs to support the small-scale as much as the large-scale. This is a complex task which is multifaceted and requires meticulous thought and consideration. Whilst there does need to be a complete shift of perception on small-scale farming, there also needs to be more industry-related research and support.

A bottom-up approach is a far more dramatic choice to try and make this happen. Coupled with this, policy, academia and practical deliverance must work more collaboratively in order to set the UK's farming system back on the right track to improved sustainability, whether that be through food production or supporting small-scale producers.

What is Hadlow College doing?

- **Conducting more industry-led research, working with Global Plant Genetics to look at the viability of small-scale asparagus produced over five as opposed to ten years. Other industry members can see this in action in order to give feedback and support.**
- **One project includes showing how much food can be grown in small areas. One example is a tunnel containing a self-ventilating fabric on an off-grid system, where nutrients and water flow in and out independently.**
- **Working with external representatives in roundtables is incredibly important to the college's development and the future of farming more broadly.**

Part 2

The second half of the roundtable built on the topics discussed in Part 1.

- What are the consequences to the UK's food supply if the industry continues with these traditional techniques?
- Is there sufficient education for students and farmers? How much do they know about alternative techniques?
- How can the industry make the most of digital learning platforms and other non-traditional practices? What needs to change at an education level?

Is the UK doing enough?

The UK shows prosperity in some agriculture and horticulture bands, however it has a long way to go in terms of other areas. What can the UK do to ensure other areas are improved?

- **How to drive change and take action**

As a collective, the farming world needs to try and implement new rules and regulations to set the industry in motion. Relying on the UN's STGs provides the perfect template, it is just a case of highlighting how important it is for the industry, and the public, to comply. As a society, if the STG targets are not met, a noticeable difference in soil quality will be palpable, impacting food production. The main thing that will be affected will be visible on the ground.

Mapping agriculture from a holistic perspective – what are the branches?

- **Health and wellbeing**
- **Consumer diet and consumer purse**
- **Health of nation**
- **Biodiversity**
- **Food security**
- **Migration**

Essentially, if the industry wants to move forward, it must educate. It needs to create a system for people to live more peacefully and have sufficient food produced in a sustainable way.

Although this will take some time to change and implement, especially if the industry is to take a more holistic approach, it will future-proof the industry, the nation and its people. Currently, most of the conflicts arise from food scarcity and food issues; if the planet is not producing enough for the existing population, then conflict and migration will occur.

These following points signify where the UK is currently falling short to emphasise the severity of what could, potentially, happen if action is not taken. The consequences of the food supply will inevitably cause:

- Increase in food banks which will be a drain on companies who implement these charitable incentives.
- Increased pressure on the NHS due to the increased population age and diet-related illnesses

The majority of these pressures could be alleviated if attention is turned towards domestic food consumption, particularly how the nation eats and produces food.

- **Turning towards the consumer**

One of the biggest issues that needs to be tackled over the next five years is to change how people cook.

There is a current split in the UK's food system which is affecting the country's overall wellbeing. On the one hand, there is the highly lucrative mass-food-production and on the other there is quality, home-grown British foods. Consumers like the idea of 'British' foods but, according to recent reports, will not buy if there is a 7-10% price differential between what they usually purchase. This divide has infiltrated the class system, polarising the 'foodie' middle-class against those on a lower income who have to buy cheaper foods to get make ends-meet.

Farmers could start to use this gap to sell quality, niche produce which moves away from the processed foods available in the supermarkets. Farmers could offer quality produce from their own farm shops, farmers' markets and through schemes such as Produced in Kent. Not only will this provide better business for farmers, it will ensure better environmental sustainability. The challenge, however, will be making the products accessible and attractive to consumers from various walks of life.

Essentially, the question is about self-sufficiency and food security. Companies including DEFRA are worried that if the industry prioritises self-sufficiency, international trade might be put at risk, which is a key element of the UK economy. The two are not mutually-exclusive, and in order to guarantee food security, trade is extremely important.

- **Provenance and organic food**

Provenance is fundamental to food safety and security. Prior to the recession, in some areas of the industry there was a boom in the purchasing of organic products. Yet this changed during the financial collapse. Since the end of the recession, the public is willing to pay more for better quality food, even though it might not be the majority.

People want to know where their food is coming from even though organic food is more expensive directly to the consumer.

Moreover, if there was a culture that was more orientated around cooking, people would buy quality, fresh products instead of ready-meals. With ready-meals, people pay for the plastic, whereas with fresh ingredients people get what they pay for. If people were taught about where their food comes from, their eating habits would definitely improve for the better. By placing the real value on raw produce, and therefore changing the way food is labelled, it will impact the way people shop.

- **Can this narrative change through consumer education?**

This is a complex, industry debate generating a wealth of questions. Organic food makes a vital difference to consumer health and wellbeing, so why aren't the real value of organic products made a priority? Is a cultural shift needed? Do people need to be more connected with where their food comes from?

There are various schemes designed to bolster consumer engagement. One of these is LEAF, a successful initiative developed by Caroline Drummond which helps link education with farming and seeks to inform consumers about the sector. Another is the organic box scheme which actually gets consumers on the farm choosing their produce.

- **What about the rural and urban split? What is good for the general public's purse? Will consumer-centricity drive market change?**

Unfortunately, the cost of quality ingredients can be prohibitive for some people, with weekly food costs disproportionately high for those on low income brackets. Often, the cost of ready-meals is higher than the raw ingredients needed to produce the same item, which is why skills in the kitchen are so important and will help connect people with the ingredients.

Bore Place, an organisation based in Kent, runs school schemes to get children cooking. Providing state-of-the-art kitchens in an EcoBuild project, the schemes allow young people the freedom to experiment with food to improve their confidence when cooking. This is a fantastic example of how to get children cooking. But, in relation to the farming industry, how does it inspire the next generation of students to consider a career in agriculture? Should it be tapping into the huge pool of children in inner-city areas to integrate agricultural education into urban spaces?

Hadlow College works with schools to demonstrate where food comes from, and has successfully run for many years a 'Pip to Plate' event aimed at local secondary schools. This takes place in the autumn at the college's orchard and examines how apples are grown and then used. Its annual lambing event, which occurs in March, is also designed to educate on the provenance of food. There is, however, always scope for more.

Examples such as these showcase how sustainable solutions can be implemented in urban areas, allowing people to reconnect with crops to understand the provenance of their food.

The industry needs to sketch its future landscape in a way which creates a natural connection between housing space and growing environments. This could maintain the biodiversity of food production, re-establishing a connection between people and their food.

Reaching wider audiences – distance learning

This final part of the roundtable raised some questions:

- How much of a challenge is there to teach what the industry does not know?
- How does the industry ensure its learning programmes keep pace with industry changes and progression?
- Some of the leading practitioners in agroecology are not based in the UK, so how does it keep moving forward?

There is huge potential to teach agriculture on digital platforms, making farming more accessible to people living in urban spaces. With the cost of living particularly high in the south-east, where Hadlow is based, distance learning is a cost-effective solution for reaching a wide variety of students. With this in mind, should the industry provide formalised accreditation programmes for farmers?

In this current farming climate, it is refreshing to see cross-industry engagement to devise new agriculture approaches. Not only is this hugely important to the country's food security, new advancements such as digital learning will make the industry more accessible.

Distance learning can be made available to farmers in many ways. Farmers cannot afford to be offsite; therefore, online portals provide the best opportunities for flexible learning. Farmers can also subscribe to single modules instead of an entire course, allowing them the freedom to build-upon their current skill-set for the benefit of their business.

What kind of incentives do farmers need?

- **Nuanced courses which help farmers develop their business marketing skills**
- **To know they have the support from their industry**
- **To be given opportunities to improve knowledge and expertise through digital courses**

Conclusion

Looking forward, what can the industry improve upon?

1. Start to place people at the centre. There is a lot of work to do with engaging young people, particularly in terms of cooking.
2. The external appearance of farming needs to change. Farming is an innovative, well-paid, secure career and this needs more promotion.
3. Continue to develop courses and education programmes which are useful for farmers and the wider agriculture industry.
4. Targeting the urban and city audiences; looking at the inherent impact of poor diet on their health and wellbeing.
5. Cohesive solutions to keep soil healthy. Set achievable and realistic aims around sustainable intensification.
6. Ground-up approach needs to be taken; there is so much youthful energy promoting progressive solutions for agriculture which needs to be recognised.
7. The industry should capitalise on the popularity of social media, including Instagram as it is especially popular in an image-based, fast-paced society.
8. Government legislation to make organic labelling an equal system. A huge story needs to be told of the impact on food security and the cost of organic food. There needs to be open, transparent communication on the entire farming story.
9. Tackling the monopolies of supermarkets to implement government policy which makes a fairer food system.
10. Continue to push Hadlow as an organisation at the centre of farming, through improved accessibility to innovative agriculture research.

The Hadlow Roundtable provided a great space for quality discussion on alternative farming practices, looking at what the UK can do to stabilise farming's future. Salient points from the roundtable included:

- Consumers need to be told a real farming narrative. This could be achieved through better industry communication, supported by more rigorous government legislation.
- Alternative farming is achievable; it just needs to be more efficient and available to the small-scale producers.
- Improved education for farmers and more formalised incentives and accredited programmes will provide greater accessibility for current and future farmers. These alternative learning programmes will make the industry more modern and attractive, shaping the future identity of farming.

Even though the current food system lacks stability, the UK farming industry has a firm grasp on the challenges which need resolving. Alternative farming approaches for instance offer a more sustainable, eco-friendly solution to food production, especially as these practices can be utilised in compact urban spaces. Although the industry has planted its seeds here, in the sense that alternative farming practices show extreme potential, the UK's domestic farming is still crying out for more government support to make these technologies accessible across the chain.

The UK farming industry has a wealth of potential, from alternative farming to digital learning courses and practices. A diverse, dynamic and exciting industry, it really is the time to be alive in the farming world – a narrative that needs to be communicated UK-wide.