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Dobermann, A. 2017. *When the need for change dawns*. Lewis Business Media.

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When the need for change dawns

The first hard copies of our new five-year strategy have arrived at Rothamsted from the printers, and they are extraordinary. Though the content is of paramount importance, of course, I am excited by the style and what this says about our industry as a vital economic sector.

We have access to some fabulous images of farming, from Britain and elsewhere, and early proofs of the report's cover offered a range of options: wheat fields or livestock and grassland systems, traditionally managed landscapes, high tech cropping or sustainably maintained holdings.

In the end, we put those images inside and took the advice of our designer who was encouraging us to consider a radically different approach for the cover. Or so it seemed to me. While I've travelled the world for the past 30 years or so, I grew up in a small village where my family had farmed for at least half a millennium, which was as far back as we could trace.

The designer wanted a document that looked as fresh and as modern in 2020 and 2021 as it will this year and next. I resisted; I like those images. But he was right. The cover is modern, forward-looking and direct...it even glistens. What better way to promote our next five years, to 2022.

As a child and young adult, I worked on the family farm before deciding to become a scientist in agriculture. That's my passion; agriculture for, essentially, the production of food. Over the intervening period, I have come to accept that things need to change.

I have come to realise that the many ways that we thought were the right ways of producing food and doing farming are, perhaps, not quite the right ways. We need to think more deeply not just about how we produce food, but also how we consume it and how we can hopefully do better in the future, knowing that we have a lot more people to feed. I feel that our latest strategy does that.

OUR VISION

OUR STORY, OUR VALUES, OUR PURPOSE

Our core values, and how we define them, endorse our commitment to productive and sustainable agriculture.

Rothamsted is a world-leading research centre with a proud history of ground-breaking discoveries in agricultural science since its founding in 1843.

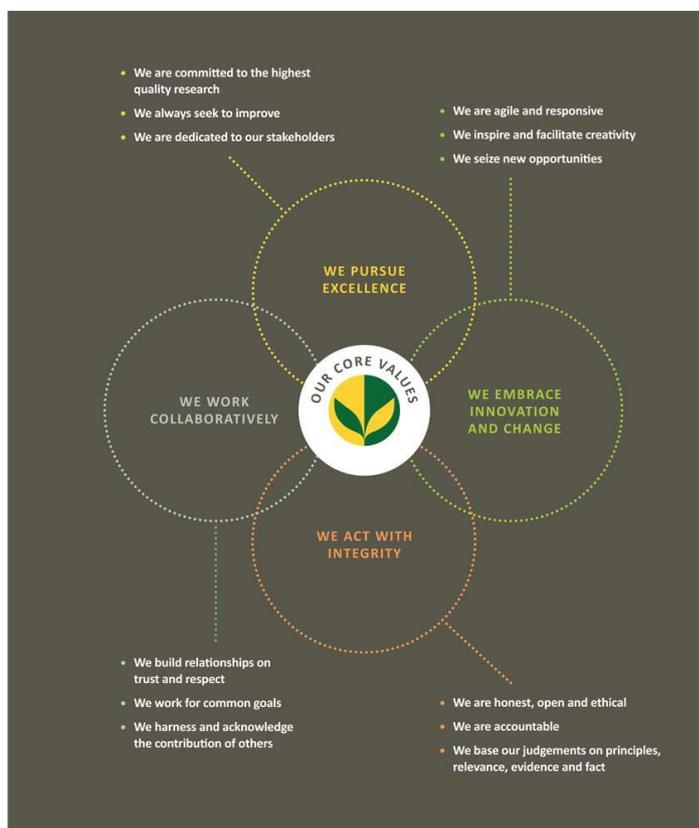
In terms of its economic contribution, the cumulative impact of our work in the UK now exceeds £3000 million a year (*Rothamsted Research and the Value of Excellence. Séan Rickard, 2015*).

We view science as a continuum, from blue skies to green fields, and strategic research as the tool to confront complex problems. We combine both, supported by unique capabilities and interdisciplinary teams, strengthened by partnerships.

Such a systems approach is the only way to achieve highly productive but environmentally-benign farming and food innovations.

PURPOSE STATEMENT

We bring together fresh thinking and global science for lasting benefits worldwide.



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We aim to develop superior crops of greater nutritional and industrial value from fewer resources, to secure productivity with smarter solutions for containing the threats, and to design the next generation of food, from plants and animals, in more efficient, competitive and environmentally aware ways.

Furthermore, we are looking at how we can make our accumulated knowledge and expertise more relevant and accessible in practice, and also more tuneable to the immediate demands of farmers and consumers.



THE CONTEXT

LASTING BENEFITS

Falling competitiveness, increasing threats, greater demands, fewer resources. There are solutions.

Agriculture in the UK is at a crossroads. The food chain, from farm to fork, adds £110 billion to the national economy each year, but British farming risks becoming less competitive in an increasingly global agricultural market.

In recent decades, the technological efficiency of agriculture has been lower in the UK than in comparable countries. The UK's productivity is challenged by increasing biotic threats (insects, disease and weeds) to plant and animal health, by resistance to agrochemicals, by declining soil health, and by a slow rate of increase in yield.

A problem-oriented, outcome-driven science approach is needed to address these challenges.

The UK also needs to shape new agricultural policies for the post-Brexit era.

This change is an opportunity for the scientific community to engage in policy innovation, to support the design and testing of evidence-based, forward-looking policies that reflect long-term thinking.

Alongside government strategies and through the National Farmers Union, the UK's primary producers and industry have identified eight priorities for agricultural research and innovation over the next 20 years (see right). These priorities have guided our strategy.

INNOVATION NEEDS FOR BRITISH FARMING

- Digital, data-driven and engineering technologies
- Advanced crop and livestock genetics and breeding technologies
- Interactions between air, soil, water and crop/animal processes within farming systems
- Integrated approaches to management of crop weeds, pests and diseases
- Integrated approaches to management of animal disease within farming systems
- Evidence-based management and valuation of ecosystem service provision from farming systems
- Skills, training and knowledge exchange
- Use of social and economic sciences

Feeding the future, four years on. NPU, 2017.

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We are launching initiatives that, at one extreme, engage our potential customers in research projects as we plan and develop them; at the other, we are supporting innovation centres that are devising new agricultural technologies for livestock, for crop threats and for data collection.

We are also looking at that gap in the middle where applied research sits, between primary research and technological innovation, and where our scientists can work directly with farmers to test their ideas rapidly, an initiative we call [FarmInn](#).

Farmers would test their ideas rigorously – on their own properties or on one of our experimental farms – with the support of our leading experts, using the best scientific approaches and without the risks associated with innovative practices. We are still trying to nail down adequate funding for the venture but are optimistic that we will do so.

Not only could ventures such as this one help to make British farming much more competitive, we could build on that secure foundation of knowledge and practice to consolidate our extensive international ties across every continent for the benefit of our stakeholders and farming everywhere.

FRESH THINKING

LEAN SCIENCE

Closer ties between researchers and stakeholders will refine and improve performances for both.

We are departing from traditional practice to pursue research of greater and more immediate relevance. We will share our ideas with our stakeholders early in our thinking, and the anticipated outputs as well, and continually engage them as the research develops. We call it "Lean Science".

This fresh thinking will encourage a more dynamic and responsive approach that is aligned with the needs of users, even pivoting to other ideas when changes of direction are called for. Lean Science will be mutually beneficial: our research will benefit from stakeholder feedback, and stakeholders will benefit from the increased value and usefulness of our research.

We are embedding these principles in our research culture through initiatives that include internal innovation fellowships, "hackathons" and new collaborative ventures for the co-development of innovations with our academic and industrial partners.

Our new Agricultural Research and Innovation Accelerator (AgRIA) is one such venture. This fast-start-fast-stop vehicle comes in three basic models: short leap projects of 6–18 months; early entrepreneur projects of 1–4 years; and longer "leaps-of-faith" projects of up to five years. AgRIA projects will cluster as themes; a soils innovation theme is among the first to be launched in 2017.

Another new venture is **FarmInn**. This initiative will enable farmers to test their new ideas rigorously on-farm with Rothamsted's leading experts, using the best scientific approaches, without the risks associated with innovative practices.

Goal: To reduce waste!!



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What we now need is a government committed to farming, with a long-term vision for agriculture. We need a government that invests wisely and strategically, and provides funds for that important middle ground of applied research that brings the latest advances to farmers immediately.

In the meantime, please take a look at the strategy. The digital version is available [online](#). Requests for a hard copy are welcomed; please email comms@rothamsted.ac.uk.

A version of this article appears in the current [digital newsletter of Farm Business](#).

Prof. Achim Dobermann

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