

# UK agricultural policy post-Brexit

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## UK AGRICULTURAL POLICY POST-BREXIT

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# Introduction

The agricultural sector stands to be among the major beneficiaries of United Kingdom's decision to leave the European Union.

Leaving the European Union and its Customs Union is a precondition for the UK to become a leader in global free trade, boosting our exports and lowering prices for all consumers. It is estimated that prices will be reduced overall by around 8%, with the price of food dropping by around 10%. The Prime Minister has signalled that we shall be leaving the EU's internal market, and given the UK's substantial trade deficit with the EU, it is vital to establish reciprocal free trade arrangements with it. It is also essential that agriculture, food and drink are prioritised in negotiating future trade deals with the rest of the world.

Abandoning the Common Agricultural Policy also provides an opportunity for far-reaching subsidy reform, with help for farmers at home going hand in hand with expanding global trade. The CAP was conceived as a regime of subsidised food production and employment protection, but since the reforms of Raymond MacSharry and then Franz Fischler as Agriculture Commissioners, the subsidies have ceased to be tied to food production. The policy has moved to a regime of area payments which are becoming hard to justify to the public and increasingly untenable politically. It is now evolving into a policy designed to impose common environmental outcomes on the vast geographic and environmental area which the member states encompass. A uniform approach across a diverse continent is at best deeply unsuitable and at worst actively damaging to local environments. CAP funding now accounts for 42% of the EU budget, and is estimated to cost £7.65 per week to family food bills, or £398 per household per year.

The great tragedy is that the CAP has failed not only as a policy for food production – the UK's self-sufficiency rate of 61% in 2015 was 1% lower than in 2014, but 13% lower than 20 years ago – and is now also failing as an environmental policy.

The first step towards a new policy must be to nationalise the entire *acquis communautaire* purely as an interim measure to ensure full continuity during the transition followed by a process of amendment. The Government must then perform a full study of all the relevant legislation and consider all of the overarching global conventions which have been historically misinterpreted by the EU. The crucial outcome, however, must be that Parliament regains its full control to repeal, amend, or strengthen the existing body of law. A UK Agriculture Bill should be taken through Parliament to establish a new UK rural policy.

There is great debate in rural areas about the continuance of current farming subsidies after Brexit and their nature. In some ways, however, this is akin to looking through a telescope from the wrong end. Leaving the Customs Union and lowering the prices of food, clothing and industrial materials benefits all consumers, particularly the most disadvantaged, many of whom live in rural areas. That, therefore, should be the key priority. It is vital to recognise at the same time, however, that for all the benefits to all consumers, such a change may create potential problems for the much smaller proportion of people in the agricultural sector which must be addressed.

A new, ambitious rural policy must have clear priorities to

- Grow the rural economy
- Improve the environment
- Protect the country from animal diseases
- Protect the country from plant diseases

as part of an integrated, flexible approach.

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The first priority in growing the rural economy must be to increase food production. By freeing farmers of overbearing regulation and bureaucracy and allowing them to embrace the latest technologies, certain areas of the UK will undoubtedly remain globally competitive even in the absence of subsidies. There are clear lessons to be learnt from the policy adopted by New Zealand in the 1980s, which moved away from subsidies as a prerequisite for forging new trade deals and demonstrated that food production can increase when farmers are given the freedom to react to the market.

By way of an example, a British farmer, Rodney Smith, set the world record for the highest wheat yield in 2015 with 16.5 tonnes/hectare. It is important to remember that the benign British climate, the length of its days and its soil quality provide some of the most productive land in the world. We can thus have every confidence that the food producing areas of the country will continue to prosper once released from the constraints of the CAP and encouraged to embrace the latest technologies.

Whilst this approach will be suitable for some areas, there will be others – including mountainous regions and national parks – which are unable to remain competitive against global producers and for which food production is inadequate as the sole means of generating income. While poultry farming is flourishing, for instance, and requires no subsidies, hillside livestock farming will need some sort of support maintained. Rather than replicate the subsidies of the CAP, however, there is now scope to reward farmers in a far more tailored way for their environmental and conservation role than the present arrangements allow. In Switzerland, for instance, Alpine farmers are supported for the work they do in maintaining the iconic landscape and a similar scheme could be implemented here. Our farming activity creates and nurtures a rural environment which sustains a £30 billion tourism industry, and payments could be made for such services as maintaining natural habitats, the provision of clean water and flood defences.

The constraints placed upon us from Brussels have been burdensome. We have been prevented from working with like-minded countries to tackle plant and animal disease and prevented from reaching trade agreements with countries which would buy our produce. We have, in short, been denied the global leadership role which would be in our best interests and those of our allies. We can now retake our full seat on the world bodies that determine global regulation – the WTO, the World Organisation for Animal Health (OIE), the Codex Alimentarius Commission and the International Plant Protection Convention – regaining both a right to vote and a right to initiate new standards and propose amendments to existing ones.

The EU has abjectly failed to keep pace with advances in agricultural technology, instead single-mindedly pursuing an overly-prescriptive interpretation of the “Precautionary Principle” more influenced by the emotions of vocal activists than by scientific evidence and advice. To replace this, the Government must now implement the “Innovation Principle”, dedicated to facilitating and stimulating evidence-led scientific development, and ensuring that policy makers are forced to consider whether their decisions might impede that progress.

Such a policy can invigorate the profitability and competitiveness of British farming while improving the environment, and seek to foster, maintain, and further our trading agreements and partnerships across the world.

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## Leaving the Customs Union

The full benefits of the UK's withdrawal from the EU can only be enjoyed if we leave the Customs Union and embrace global trade. The Common External Tariff (CET) and a range of other non-tariff barriers raise agricultural and manufacturing prices by around 20 per cent within the customs union, to the detriment of our consumers. It places a 100 per cent premium on processed foods, pushing up prices for UK consumers.

Indeed, across the EU – in which state support accounts for 28% of farm revenues – food prices are 17% above world prices, while in New Zealand – with only 1% state support – prices are only 2% higher than in the USA. The average EU tariff on agricultural products is close to 14.8%, compared to 4.4% for non-agricultural products, and even higher for processed products. In 2013, they averaged 25% for sugar refining, 20% for animal products, and 31.7% for dairy products.

Minford et al. have performed detailed model calculations on the prospect of the UK “simply” leaving the EU, abolishing the European Communities Act 1972, not negotiating any new agreements with the EU or other countries and putting up no UK trade barriers whatever. They conclude that the UK would receive a welfare gain of 4% of GDP, with consumer prices falling 8% overall, and food prices by 10%. ONS statistics for 2015 suggest that UK households spend on average £58.8 per week on food and non-alcoholic drinks, so such a reduction in food prices would represent a saving of £305 per household per annum, or some £8.2 billion overall.

In addition to the benefits for consumers at home, leaving the Customs Union can have profound effects on our international development efforts. The EU's protectionist wall has meant that developing countries can feasibly export only raw commodities rather than ensuring investment in the manufacturing that creates jobs and spreads prosperity. As one example, the tomato industry in Ghana has been all but destroyed as a result of the dumping of subsidised Italian tinned tomatoes. Rather than working their own land, Ghanaian farmers are instead forced to migrate, often illegally, to work on the harvest in Italy. Likewise, Germany profits more from processing coffee than the whole of Africa does from growing it.

## Subsidy reform beyond the CAP

There are thus clear benefits to be derived for all consumers – and particularly those from poorer households – from leaving the Customs Union and expanding global free trade. Prioritising increased food production, freeing farmers of overbearing regulation and bureaucracy and allowing them to embrace the latest technologies will undoubtedly encourage certain areas of the UK to become globally competitive. We return to each of these subjects later.

In principle, however, this lowering of food prices creates a problem: we must recognise that whilst some parts of the UK will be competitive with world producers, others will not. Our attention must, therefore, also rest on supporting the agricultural sector at home, on which depend the livelihoods of 1.5% of the UK's workforce and around 0.7% of GDP.

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As things stand, the EU contributes £2.9 billion to the UK via the CAP and its related subsidies, yet our estimated net contribution is more than three times that, at £9.8 billion. Thus, unconstrained by EU rules, the Government will now be in a position, if appropriate, to increase rural payments. As well as our ability to pay as much, if not more, than the CAP, UK funds can now be more flexibly allocated. Without the need to comply with centralised directives, funding can be deployed in a much more targeted and effective manner, informed by those with a full understanding of the British industry and environment, and its interests.

Abandoning the CAP thus affords an opportunity for far-reaching subsidy reform; we ought to be open to learning lessons from across the world, including New Zealand, which moved away from subsidies in the 1980s. Those reforms were born of necessity: Government debt had increased from under 10% of GDP in 1976 to 41% by the mid-1980s, signalling a looming public debt crisis. Nonetheless, the removal of subsidies had the effect of increasing the sector's incentives to respond to market signals by adopting new methods of production. It is significant that the reforms provided only very limited transitional support to assist these changes, and by and large they were left to be taken as business decisions. The farmers themselves were thus given responsibility for their own commercial viability.

New Zealand subsidies had risen to 34% by 1983, as given by the OECD Producer Support Estimate, and were consequently the overwhelming influence on farmers' decision making. As a result, a nation of 3.5 million people had 70 million sheep, and soil erosion became a serious concern, with ever more unsuitable land being used for unsustainable flocks. In the 30 years since, sheep numbers have halved, but a spectacular increase in productivity has meant the New Zealand still produces a similar quantity of meat. By 2012/13, lambing percentages had increased by 23% and lamb carcass weights by 27% over 1990/91, which is a convenient base year in which any residual effects of subsidies were negligible. Over the same period, the weight of lamb sold in kilograms per ewe has increased by 89%, and milk solids per dairy cow have increased by 31%

As well as the removal of protectionism, pro-active work on market access has been a vital component of this remarkable progress. New Zealand approached trade liberalisation from many angles, and today has free trade agreements with all 10 nations of ASEAN, and is the only country in the world to have separate arrangements with China, Hong Kong and Taiwan.

New Zealand's food and drink exports have grown at a compound annual rate of 8.3% per year over the last 15 years. That rate has been 15% per year for the last decade for processed foods, and nutraceuticals have seen an annual growth of 18%. Drinks, led by wine, have achieved annual export growth of 24% in the 15 years to 2010. Wine exports alone have increased from \$10 million in 1984/5 to \$1.6 billion in 2016

The horticultural sector has been among the chief beneficiaries of the move away from subsidies. Prior to the reforms, it exported little as the subsidies to meat, wool and dairy far outstripped those to horticulture. In 1983/4, for example, New Zealand exported \$42 million worth of kiwi fruit and \$140 million of horticultural products, but by last year kiwi exports alone were over \$1 billion, with total horticultural exports around to \$4 billion.

The changes have also stimulated new industries. New Zealand had no deer industry and exported no venison in 1984, but the national deer population is now around 2 million and the earnings from exports are in excess of \$100 million.

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It is interesting to note that farmland prices fell by 50% in 1988, highlighting the scale of the distorting effect of Government subsidy. Values had, however, recovered to around 86% of their pre-reform value less than a decade later, and are currently more than 100% of what they were in the early 1980s.

This independence gave rise to several industry-led initiatives with the aim of improving the sustainability of the New Zealand agricultural sector. A range of voluntary codes of practice, for, among others, the pork and logging industries were drawn up, along with guidelines for grazing and the responsible use of fertiliser. These projects were born not only of the general consideration of sustainability, nor in the face of potential regulatory pressure, but also in response to changes in the market. It is well known, for instance, that consumers are increasingly concerned with how a product is produced, and there is consequently a market incentive for farmers to establish demonstrably sustainable, environmentally conscious means of production.

The reforms also had a positive environmental impact by reducing the use of fertilisers and pesticides, decreasing pollution levels in rivers, reducing the farming of marginal land and increasing biodiversity. Land clearance and overstocking, which had been major causes of high levels of soil erosion, were stopped. The production of livestock has instead been intensified on better land rather than hills prone to erosion, and hills have been reforested leading to a million hectares or 50% increase in area under plantations.

The 1980s did see a general decline in rural incomes, but these should not be attributed solely to the removal of Government subsidies. Instead, a combination of high interest rates, inflation, an increasing value of the NZ dollar and lower prices for dairy and meat products in world markets than might have been expected took their part.

In addition, the failure to implement the deregulation process uniformly across all sectors led to unnecessary hardship. The planned tariff liberalisation process, for example, was rather slower than planned, and much slower than the subsidy elimination programme. This had the effect that the rural sector was paying a premium as a consequence of high tariff rates. Nonetheless, by the end of the 1980s farm prices had begun to rise again. A combination of improving world markets and falling input prices lowering processing costs improved farmer incomes.

The lesson from New Zealand is surely that farmers must look for the opportunities that exist both at home and beyond their borders. Fear of change is very often a difficult obstacle, but farming in accord with comparative advantage allows the sector to adapt its production systems to suit consumer needs and adjust production costs accordingly. The "rural collapse" which was predicted by some did not occur, with New Zealand's rural population actually rising between 1981 and 2001. There were only 800 forced sales from the 80,000 farms, and only around 1% of farmers were forced to leave the industry.

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## Tailored agricultural rewards

A move away from protectionist subsidies, however, is not to say that financial and other assistance to farmers will be withdrawn. Instead, funding can be specifically tailored to meet the unique needs of the UK's geography and climate.

The clear first priority for growing the rural economy must be to increase food production and national food security. We must recognise, however, that expanding global trade and increased competition from international producers presents a potential problem for some domestic farmers. There will undoubtedly be areas of the country which the new policy encourages to become competitive with the rest of the world, but equally undoubtedly there will be areas which cannot do so. In lowland areas, for instance the decisions on which crops and animals to farm should be broadly left to the market without production subsidies, but this is not the case in areas where food production is simply not adequate as the sole means of generating income. It is in these areas which payments can be most helpfully made to reward and sustain farmers for their environmental and conservation work, but such payments should, of course, be made to farmers in any area for providing a public good.

Switzerland provides a pertinent example of such a policy in action. Particular services are remunerated through direct ecological payments with the aim of creating valuable plant and animal habitats. Farmers are rewarded for extensive meadow land, permanent flowery meadows, preserving natural field margins, reed beds, hedges, copses and wooded river banks amongst others.

A key facet of the Swiss approach is its significant support for Alpine farmers, exceeding CAP payments. Many of these farmers would struggle to compete on the basis of food production alone, but are crucial to the environmental maintenance of the Alps. Every summer, some 220,000 sheep, 20,000 goats, 120,000 cows and 350,000 calves spend three months on upland pastures, and farmers receive payments for this transhumance on the condition that they farm in an environmentally-friendly manner.

The underlying understanding of this approach is that livestock farming provides the best tool for conservation efforts. If remote areas were to be abandoned in the UK, they will soon revert to scrub, with broken down stone walls, unmanaged bogs, hillsides covered in bracken and self-seeded trees populated by carrion crows and magpies. As a consequence, such areas would not attract the visitors on which they depend. The idea that such areas should be "rewilded" with long extirpated predators is a Rousseauist fantasy which should not be encouraged and should absolutely not be supported with Government funds.

Swiss schemes also account for high animal welfare standards, and encourage the regular outdoor exercise of animals and particularly animal-friendly stabling. By 2002 30% of all animals were kept in such conditions, and 61% were regularly exercised outdoors. Organic farming is also rewarded, and between 1993 and 2002 the number of organic farms rose fivefold to 6,000. There is a separate programme aimed specifically at improving the quality of the water in problem areas



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There need not be any conflict between having an efficient and a humane farming industry. The Swiss payment system provides a useful example, as do the codes of practice developed in New Zealand which we mentioned earlier. All New Zealand lamb for the Middle East is stunned prior to slaughter, and farming practices have responded to increasing general interest in animal welfare. It is quite apparent that the majority of the British people take a keen interest in animal welfare, and would be horrified by some current slaughterhouse practices designed to cater for religious minorities. Restored UK Sovereignty will provide us with the scope not only to strengthen our own legislation, but also to take a leading role on global bodies in shaping world regulation on animal welfare.

The Lake District, the Peak District and the mountainous areas of Wales and Scotland are examples at home which are unsuitable for food production alone, but whose farming activity creates the conditions for a tourism industry worth £30 billion per year. Under the CAP, there has been no mechanism for the market to reward farmers and landowners for the work they do in maintaining and improving these most precious environments, but an independent UK will be able to make such payments. The additional roles of providing national food security, maintaining the cultural landscape, conserving and ameliorating biodiversity, producing saleable water and managing flood control can all be fully rewarded as part of an integrated rural policy. Given the high profile of floods in recent years, there would be clear public support in particular for rewarding farmers for water management and the delivery of clean water.

All such schemes would naturally have to comply with WTO rules, but this does not pose a problem for environmental payments. The WTO identifies agricultural subsidies as being in blue, amber, or green “boxes” according to their distorting effects on production and trade. Those considered to be significantly distorting, which include measures to support prices or subsidies directly related to production quantities, are placed in the amber box. Limits are imposed upon these measures, with only *de minimis* support (5% of agricultural production in developed countries) allowed. The 30 WTO members with larger subsidies than this are committed to reducing them. The blue box contains supports that would normally be amber upon the condition that they require farmers to limit production and reduce distortion. Environmental and conservation schemes, research funding, training programmes and disease control measures, however, are placed in the green box. Since these measures are Government funded and do not distort prices for consumers, no limits are placed upon them.

In addition to such schemes, regulation can now be massively simplified, which will lower costs for farmers which they are unable to pass up the food chain. We are now in a position, for instance, to instigate a “gold standard” for the best performing, most highly trusted farmers, who would not then be subject to regular inspection, but who would still be subject (as for tax returns) to random inspection.

Further to this deregulation, leaving the EU means that the UK can retake a global leadership role, and retake a full seat on the world bodies that determine global regulation. These include the WTO, the World Organisation for Animal Health (OIE), the Codex Alimentarius Commission, and the International Plant Protection Convention. Retaking such seats naturally confers a right to vote in such bodies, but crucially also gives a right to initiate new standards and propose amendments to existing ones. We will, once again, be free to co-operate with long-standing Allies across the Anglosphere and the Commonwealth ensuring that world regulation does not prejudice our local environment and its agriculture.

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## Devolution

The Scotland Act 1998 provides that Scotland has to abide by EU law, but devolves all matters except for those on a list of “reserve powers”. EU policy areas are not specifically prescribed as reserved, and will consequently fall by default under the scope of the devolved administrations. Thus, the policy areas which Westminster wishes to retain will have to be spelled out in legislation, with amendments to the Scotland Act in the Repeal Bill. Professor Alan Page has suggested that rather fewer policy areas might be automatically devolved than we might suppose, but specifically points out that agricultural and fisheries policies are among those that would fall under the competence of the devolved administrations.

In the House of Commons on 17th January, the Secretary of State for Exiting the European Union said:

“My presumption is that we will devolve wherever possible, so long as it does not undermine the UK single market, which is incredibly important to Scotland – about five times more important than the European single market – so long as it preserves the Government’s ability to carry out international negotiations and so long as we can meet international standards.”

If the UK is to be able to sign trade agreements and abide by WTO commitments, HM Government must decide overall national rural policy, replacing the EU as the ultimate authority. Similarly, the UK must be represented as a whole on global bodies, including the WTO. Devolved administrations will, nonetheless, play a part in shaping policy such that it is flexible enough to reflect the markedly different circumstances of different parts of the country, and any policy must be locally implemented and locally administered.

## Combating animal and plant disease

A cornerstone of environmental policy must be the maintenance of local fauna and flora, and the re-establishment of control of our borders will be a major help in this regard. This is discussed more expansively in *UK environment policy post-Brexit*, but the damage done by invasive species is estimated to cost £1.8 billion each year, and many native species face local or national extinction as a result. Effective action within the EU has been woefully slow, and the risks continue to rise at an accelerating rate.

By retaking control of our borders, we can implement a system with the kind of rigour found in Australia and New Zealand, to the benefit of our animal and plant health, and ensuring the safety of British forests, flora and fauna for generations to come.

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## Food production and public procurement

The food chain contributes £85 billion per year to the UK economy, supports 3.5 million jobs, and provides 62 per cent of the food we eat. The food and drink sector is the UK's largest manufacturing industry – bigger than cars and aerospace combined; it employs one in eight people. Many of these jobs are located in rural areas, and a UK policy must encourage import substitution and the export of quality products.

Public procurement by hospitals, schools, defence and prisons is worth £2.4 billion per annum and represents around 5.5 per cent of food service sector sales. We must direct this procurement towards UK producers to provide a baseload demand, and create an expectation for authorities to source nutritious foods of the highest standards, and farmers empowered to supply those products.

In accordance with the 2014 Bonfield Plan and fully compliant with WTO rules, it must be made easier for procurers to deliver an efficient service via a straightforward consistent process, which in turn provides a clear message to suppliers as to what is required. We can thus encourage more SMEs and local suppliers to the market, with systems of assurance in place to maintain a close alignment between procurers and suppliers.

A key part of this toolkit is the “balanced scorecard” for procurement decisions. This scorecard is entirely compatible with Government Buying Standards, ensuring a baseline of nutritious and sustainable produce, but goes beyond them. Straightforward criteria such as cost are weighed against more complex themes of resource efficiency, animal welfare, health and wellbeing and so on. In so doing, priorities such as farm assurance and waste management can be built into decision making; suppliers should be encouraged to familiarise themselves with these criteria and register with the procurement portal to boost them in competing for public-sector contracts.

## Labour and trading arrangements

The UK presently enjoys trading agreements with over 50 countries across the world. We must be determined in maintaining these relationships, and pro-active in exploring and fostering new ones, all the while requiring that imported goods be up to the same high standards of domestic products. The EU's record in signing major trade deals has always been poor, being hampered by the competing interests of 28 different member states and because they are so often used to export regulation and policy issues surrounding human rights.

There is often a lack of awareness among consumers around the differences in quality of apparently similar internationally and home-grown products. With expanding global trade, it must be ensured that food labelling reflects the different conditions and regulations under which food has been produced, and that all produce sold in the UK meets Red Tractor Standards. Regaining control of our borders represents a vital step in enabling us to implement rigorous checks to halt the spread of pests and disease.

Allied to this, we must make sure that UK farmers have access to sufficient supplies of labour, so that they remain profitable and competitive. The UK must continue to provide a welcome to both seasonal and non-seasonal migrant workers with the right skills to allow businesses to invest and grow. In addition, the status of non-UK nationals currently employed here must be guaranteed as soon as possible.

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There are an estimated 67,000 seasonal workers of non-UK origin, chiefly from Eastern European countries inside the EU, in UK agriculture. Assuming an end to the Free Movement of Labour, a new Seasonal Agricultural Workers' Scheme will have to be devised and put in place before the end of the current free movement arrangements. The last SAWS was removed in 2003 after freedom of movement was extended to Romania and Bulgaria, and had a limit of 21,250 people. The scheme included licensing schemes for business, ensuring that safety, workers' rights and welfare standards could be maintained, and any new scheme ought to be similarly constituted.

There is precedent for the success of such approaches in the form of New Zealand's Recognised Seasonal Employer Scheme (RSES), first introduced in April 2007, which allows up to 8,000 workers – chiefly Pacific Islanders – into New Zealand on a seasonal basis. The scheme has been suggested as an international best practice by a study for the World Bank, bringing benefits to migrants as well as the sending and receiving countries.

Unlike the British SAWS, the New Zealand scheme includes a Resident Labour Market Test, ensuring that employers take reasonable steps to recruit domestic workers into available positions. Employers under RSES are also required to pay the market rate for work being carried out to avoid a local workforce being undercut by immigrant labour, and must bear the cost of repatriation if worker becomes illegal.

In addition to attraction labour, it is also important that the UK continues to attract the best talent and experience from across the world, both in farm management and research and development. Any new immigration criteria must reflect the needs of this vital industry, both for permanent skilled workers and for students wishing to train here.

What is true for labour arrangements must also hold for educational opportunities. Agriculture is the fastest growing subject at UK universities, with student numbers increasing by 4.6% last year. More than 19,000 people are now studying it, and it remains one of the best options for students' future employment prospects. In 2013/14, for instance, 96% of graduates from Harper Adams University were either employed or engaged in further study six months after completing their course. The opportunities which leaving the EU provides in attracting the brightest students not only from Europe but around the world can ensure that this sector can continue to thrive.

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# The Innovation Principle and modern technologies

If British farming is to be kept globally competitive, we must be enthusiastic in our adoption of new technologies, be they autonomous tractors, gene editing, or nutraceuticals. The EU, however, has obstinately refused to embrace technology, and is fast being outstripped by economies around the world; it sits on some of the most fertile land on the planet and yet still imports food from the equivalent of 35 million hectares of someone else's farmland.

US maize yields have overtaken those of France in the last 20 years. France is now missing out on 0.9 tons per hectare of her maize yield, amounting to a total loss of 1.4 million tons across its 1.5 million hectares. If France had kept pace with modern technology, that crop could be worth an extra £150 million to French agriculture. French yields could be similar to those in the US, or else France could free up 150,000 hectares currently used for the maize crop and put it to use for wildlife, recreation, or forestry.

China, South Korea and North America are vying for global innovation leadership and the rate of change is ever accelerating. The intensity of development in these economies is twice what it is in Europe, which was once the innovation leader. The European devotion to the severest interpretation of the Precautionary Principle, which considers only the environmental hazards of innovation and not its benefits, is turning the continent into the Museum of World Farming. It is an appalling indictment of the EU regime's extreme technological risk aversion that the world's largest chemical company, BASF, has abandoned all further biotechnology research for the European market.

This over-cautious approach is typified by the impending ban on the herbicide glyphosate, known as Roundup. Farmers have made clear that this would be damaging to British agriculture so, whilst we are obliged to comply with all regulations until our formal withdrawal, we must act swiftly to repeal such regulations as soon as that power is returned.

To further enhance the rate of improvements in technology, the UK can now adopt the "Innovation Principle" from which the European Commission has so long shied away in favour of the current severe abuse of the Precautionary Principle. A definition of the Innovation Principle runs:

"The principle requires that whenever any policy or regulatory decisions are under consideration, the impact on innovation should be fully assessed and addressed."

Thus, both the risks and benefits of any proposed new technology would have to be weighed against the risks and harms of existing technology. It would ensure that policy makers had to consider the potential of new innovations rather than simply strike them down, and force them to assess whether any regulation was likely to stifle progress. It would stimulate confidence and encourage investors in agricultural innovation to invest in the UK for the long term.

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Embracing such an innovative approach goes hand in hand with the reform of subsidies mentioned earlier. Overbearing subsidies bring with them overmighty bureaucratic control, which suppresses enterprise and innovation. The UK is home to some of the best scientific innovation on the planet, at institutions like Rothamsted Research and the John Innes Centre, but their efforts have long been hampered by scepticism from the EU. But for European pressure, blight-resistant potatoes could be in development already, which would not only pave the way for yet further innovation, but also come as a relief to any farmers enduring a wet summer. Rather than spraying their crops for the 15th time to prevent disease, they would be able to capitalise on the very latest technical solutions, much more benign to the environment.

The Innovation Principle can ensure that such developments are no longer suppressed, and that the UK can lead the way in agricultural technology as we have so often done before. New technology, and the corresponding reduction in the agricultural footprint which it entails, has far-reaching consequences for the future of the countryside. A weighted average of all crops by their contribution to human diet reveals that the acreage of land required to produce a given quantity of food is 68% less than it was in 1960. It has been estimated that less land will be needed, by an area larger than India, to feed the 9 billion people of 2050 than is presently required to feed today's 7 billion. Indoor vertical farming based on hydroponics may accelerate the rate of change yet further.

The UK is now once again able to lead the world at the very forefront of agricultural development, and a new policy must afford farmers the flexibility to embrace and adapt to new technologies. The Government's Agri-tech Strategy, launched in 2013 with £160 million funding, must be maintained and expanded, as must the commitment to and investment in scientific research.

The Treasury has already committed to underwrite all projects funded through the EU research and innovation programme Horizon 2020 beyond the UK's EU membership. This pledge, which in principle extends for 10 years, is a welcome demonstration of the UK's commitment to science, but more is needed to secure its long-term future. Increased investment in applied research, policies to continue to attract global talent and a regulatory framework which enables the UK to collaborate across the world must be brought forward as part of a new, ambitious research outlook.

Notable technologies in development include wheat grown with nitrogen-fixing bacteria in its cells, which has no need of fertilisers, chicken enriched with Omega 3s, beans engineered to be high in healthy oleic acids, insects genetically modified to spread sterility in pest populations, and driverless tractors which can precisely deliver tiny doses of herbicides to weeds. Innovations thus promise to make farming much better for the environment as well as more productive, which raises the important question of how best to use the "surplus" land.

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## Connectivity and transport

Much of the countryside has already been turned over from food production to other purposes, from conservation to tourism and recreation; a new policy must encourage and reward that flexibility and adaptability. The Scottish Highlands, for instance, are used far more for stalking and hiking than they are for sheep farming; the grouse moors of the north remain good employers and preserve a rare natural habitat.

Hand in hand with these developments, however, must come an improvement in rural connectivity. For the first time in the history of man, there is the potential for those in rural areas to overcome the innate disadvantage of their location. Good transport links, better mobile coverage and fast, reliable broadband must thus be key priorities for unlocking rural enterprise. The current failure to extend high quality mobile coverage and superfast broadband is definitely holding back rural development, and their urgent improvement is a justifiable use of public funds. Connecting the countryside as well as the town will usher in unprecedented opportunities for businesses to thrive and create productive employment opportunities. The future of the countryside can, therefore, be a mixture of productive farming – with new technologies making for ever more efficient harvests – tourism, recreation, conservation, and well-connected businesses ensuring a sustainable, prosperous and self-sufficient rural economy.

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## Conclusions

- Leaving the Customs Union will boost exports and lower prices for all consumers. The estimated 10% reduction in the cost of food represents a saving of £8.2 billion per year, or £305 per household.
- We must maintain the trading agreements which the UK presently enjoys with over 50 countries around the world, and be pro-active in exploring and fostering new relationships. To allow such arrangements, HM Government must decide overall national rural policy in preference to devolution, replacing the EU as the ultimate authority. Agriculture, food and drink must be prioritised in future negotiations.
- In tandem with expanding global trade, support can be maintained for the agricultural sector at home, on which depend 1.5% of the workforce and around 0.7% of GDP. In fact, we are in a position to increase payments to less productive areas.
- Abandoning the CAP allows for far-reaching subsidy reform, with clear lessons to be learnt from the approach followed by New Zealand in the 1980s. Relieving farmers of overbearing bureaucracy and allowing them to embrace the latest technologies will encourage food-producing areas to become globally competitive without production subsidies.
- It must be recognised, however, that whilst some areas have the capacity to compete with global markets, there are others in which food production cannot be the sole means of generating income. These areas will particularly benefit from a system to reward and sustain farmers for their environmental and conservation work, but such payments should be made to farmers in any area for providing a public good.
- Farming sustains a rural environment on which depends a £30 billion annual tourism industry, and farmers ought to be recognised for that work. There would also be clear public support for rewards for water management, the delivery of clean water and flood defences.
- Technological development can be encouraged by abandoning the EU's severe interpretation of the Precautionary Principle in favour of the Innovation Principle, requiring policy decisions to consider not only the potential hazards of new technologies, but their benefits. The Government's Agri-tech Strategy, along with its investment in scientific research, must be maintained and expanded.
- Public procurement, worth £2.4 billion, by hospitals, schools, defence, and prisons can be directed towards UK producers in a manner that is WTO compliant. A clearer, more efficient procurement process can be established for the benefit of both procurers and suppliers, and thus encourage new suppliers, including SMEs, to the market.
- It must be ensured that all imported goods meet the Red Tractor Standards of British produce.
- Taking advantage of our natural borders and learning lessons from Australia and New Zealand, we must implement a system of rigorous checks to halt the spread of pests and diseases.
- Farmers must have sufficient access to both seasonal and non-seasonal labour, developing an analogue of the Seasonal Agricultural Workers' scheme attracting skilled labourers from across the world.
- Equally, the UK must continue to attract and welcome the brightest students not only from Europe but around the world. It is welcome that the Treasury has pledged to underwrite existing research projects funded by Horizon 2020, as investment in training and applied research must be maintained and expanded.
- Improving rural connectivity must form a key part in growing a prosperous and self-sufficient rural economy. Good transport links, better mobile coverage and fast, reliable broadband must thus be priorities for unlocking rural enterprise.



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