

Issues & challenges facing UK farmers

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Jim Orson is Research and Technical Director of The Arable Group (TAG), a farmer run charity that provides independent and interpreted information and advice to its members. The farming members manage 35% of the arable land in England. In addition, there are 600 members from the allied industries, including independent advisers and employees of pesticide and distributor companies. TAG has 24 trial sites across the main arable areas of England. In addition, it has a consultancy company comprising 30 consultants and last year, it acquired the spray application unit from the Silsoe Research Institute that was being closed by the UK Government. More information on this group is available at www.thearablegroup.com.

Inputs and yields

UK grain farmers are very fortunate that their soils and climate sustain high and very reliable yields. On average, the wheat yield is around 8 t/ha and it varies little between years. Indeed, the cost of land and labour in the UK makes it essential that high economic yields are achieved in order to spread the costs over as many tonnes as possible. Labour and machinery costs for grain farmers in the UK run at around £250-300/ha. Despite poor returns from agriculture, the cost of land has been increasing in recent years, often driven by people outside the industry. Rents for grain production can be around £150-250/ha, depending on the type of tenancy and the quality of the land.

To achieve average yields requires a lot of nitrogen and pesticides. Around 200 kg/ha of nitrogen is applied to wheat and it usually receives a growth regulator to prevent lodging, three fungicide applications and around two herbicide applications. This has resulted in issues relating to nitrates and pesticides building up in both surface and ground waters.

Environmental concerns

The inputs necessary to maintain the competitiveness of UK arable production are under great scrutiny and the eventual outcome is unclear. Within the European Union (EU), there is legislation aimed at achieving high levels of water quality by 2015. This legislation, The Water Framework Directive, will shape the future for arable production, not only in the UK but also throughout Europe. The problem is that the level of water quality required has yet to be defined and the definition may vary between member states of Europe.

It seems that the UK government is taking a reasonably pragmatic approach and will not be stipulating water quality last seen in the ice age. However, UK farmers are still concerned that their government will 'gold plate' the regulations and insist on higher standards than elsewhere in Europe. Meeting current regulations is already causing concern and any additional requirements could impose burdens that might reduce the ability of the UK farmer to compete. At worst, the standards could be so high that significant proportions of arable land will have to be returned to unfertilised grassland.

Pesticides

There is also an underlying concern over the reducing number of pesticides. A number of the older pesticides have been removed from the market as part of an EU review process because they failed to meet the current standards for registration. This, of course, has other implications because many of the older pesticides have more than one site of action and so are less likely to suffer from the development of resistance.

The annual grass weed black-grass (*Alopecurus myosuroides*) infests about half the UK wheat area and is now resistant or developing resistance to all the herbicides used in cereals, except trifluralin. However, trifluralin does not give very high levels of control and may soon be withdrawn because of the review process. The main disease in wheat (*Septoria tritici*) has developed complete resistance to the strobilurin fungicides and resistance to the triazoles, the other main fungicide group, is increasing.

Farmland biodiversity

Another issue that may possibly affect the competitiveness of UK agriculture is farmland biodiversity. Over 75% of England is farmed and much of the rest is under housing. Therefore, there are fewer large wild areas, as found in many other countries, and so farmland is expected to maintain a high level of biodiversity. At one time it seemed that the Government was moving towards a demand that crop production be compromised by allowing some weeds to grow to ensure that they acted as hosts to key insect species that support the food chain for farmland birds. However, research is indicating that cropping the less productive parts of the farms with specific plant species that support insect life may be a more acceptable approach for farmers and achieve the level of biodiversity that society seems to require.

Dwindling research

The Government Minister responsible for farming has recently stated that any financial aid for the industry will be used to minimise the impact of agriculture on the environment and not to support production. Already, it is clear that the UK government will not fund any strategic research in agricultural production but it is maintaining support to high science in the biological disciplines. Hence, production research is totally supported by farmers through a statutory levy and through membership of research groups such as The Arable Group.

Energy crops

Despite this, UK arable farmers are in an optimistic mood. Prices have gone up, partly because of the drought in Australia, and they have great hopes for the production of bioethanol from wheat and biodiesel from oilseed rape (i.e. canola). The EU has issued obligations to fuel companies to ensure that by 2010, at least 5% of the content of petrol or diesel is in the form of biofuels. Even this modest target will consume the production from a huge area of crop. The bioethanol plants that are planned in the UK will use over 3 million tonnes of wheat/annum, which is equivalent to the amount that the UK currently exports each year. The production of biodiesel is in its infancy in the UK but it is expected that over half the European area of oilseed rape will be used for biodiesel in 2007.

It may be that not all the planned bioethanol plants will be built and that much of the wheat that is used in the process may be imported but some increase in domestic demand for wheat for this use is envisaged. In addition, it may well be a short lived market. The energy gain (energy output compared to fossil fuel energy used in production) from biofuels produced from wheat and oilseed rape is fairly modest. However, the energy gain is potentially far higher should it prove technically feasible to produce ethanol from cellulose and lignin based materials, such as perennial grasses and wood coppice. In addition, it may be more appropriate that wheat is used for food in a world where current production has not been meeting consumption for the last few years.

The biofuel initiatives by Governments are due to concerns over climate change and the need to reduce reliance on oil imports. Climate change is also putting the spotlight on the carbon efficiency of food production and the impact of production methods on greenhouse gas emissions. This also results in a focus on nitrogen use, the main driver of UK arable production. Half the fossil energy consumed in order to produce a tonne of wheat or oilseed

rape is used to produce the required amount of nitrogen fertiliser. Moving from ploughing to shallow cultivation may be a sound economic argument but it does not have a huge impact on reducing energy use in agriculture.

There is talk of a carbon trading scheme being developed in the UK and that this may result in farmers having another source of income. However, the Government has made it clear that farmers will not receive income from this source for the *status quo*: there must be a change in practice. In addition, the Government has indicated that farmers will not be paid to sequester carbon in the soil by adopting non-plough tillage. The reason for this is that should the land be ploughed at a later date, the sequestered carbon will be released back into the atmosphere.

The future

UK arable farming is facing the future with a degree of optimism but also some trepidation. The structure of grain farming businesses has changed radically over the last ten years, helped by increased flexibility of land tenure and simplified cultivation and crop management systems. One person can now do all the work for around 250-300 ha of combinable crops. At the same time, arable farmers have also adopted practices to reduce the impact of farming on the environment. Whilst most farmers are more confident that their role in food (and possibly energy) production is now recognised by wider society, they are also aware that further restrictions on the way they farm are just around the corner. Hence, even without considering the potential challenges of climate change, the fast pace of change in the UK farming will continue.