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Technical Article

from Kelvin Cave Ltd

By **Roger Vickers** CEO of PGRO (Processors and Growers Research Organisation)

Policy - a word that turns most people off - is probably an unpromising one to start an article. It was, however, CAP reform that started some mixed farmers thinking about how best to make the most of the greening regulations to maximise their home-produced protein and reduce their outgoings. Since then the national crop area of beans, practices of home feeding, and utilisation within the feed industry in general have increased.

As a result, with a focus on produce grown and fed on farm both as preserved grains and as wholecrop silage a previous edition of ***KnowHow*** featured the feeding qualities of beans. Pages 4-9 Spring edition 2016 ('Hold on to more profit with home-grown beans').

The current CAP regulations, announced in 2014, encompass the probably now well-understood 'Three-crop rule' and its requirements for Ecological Focus Areas (EFAs). These requirements accelerated what was an already increasing interest in UK pulse cropping - especially in field beans. Bean area rose steadily year on year following the CAP ruling, and as of harvest 2016 stood at approximately 175,000 hectares in England and Wales (source: DEFRA).

Policymakers love to make changes and, just as we were all getting used to the new situation, it was confirmed at the beginning of August 2017 that changes to the EFA greening requirements would come into force from the 1st January 2018. The changes will apply to crops from the point of sowing through to harvest. Thus encompassing crops sown in autumn 2017 and prohibiting the use of any plant protection products on EFA fallow, EFA catch & cover crops and for EFA Nitrogen Fixing Crops. (Ref. 1, *see overleaf*)

It is too early to say what effect this will have on the area of beans sown for 2018 harvest - but what is certain is that the underlying reasons for growing them and the very real farming benefits they deliver to the rotation have not changed.

Beans are widely recognised as a low input crop. That said, to get the best out of them they cannot simply be ignored. Planning and attention to detail, from the initial field selection right through to harvest, will help to ensure that the very best crop is realised. Inputs may be few but attention is required to ensure that the crop is well established, with free draining soil and an unimpeded root zone. Weed competition should be minimised, sufficient nutrition should be available and, as far as possible, the crop should be maintained free from the stress of pests and disease.

As nitrogen-fixing crops, beans do not require the application of any nitrogen fertiliser and can be expected to fix about 240kg of N during the growing season, leaving behind a residue of 50-70kg for the following crop. (Value £36-£50/ha based on ammonium nitrate at £245/t) (Ref. 2, *see overleaf*)

This nitrogen residue and the positive impact the beans have on soil structure and soil biology are a large part of the reason that cereal crops following beans are so much improved. These benefits are readily visible in a following wheat crop, but have a decreasing but still present impact for subsequent crops too. A typical first wheat after beans is likely to yield 0.8 to 1.0t/ha more. At current values this represents additional income of approximately £145/ha.

Being legumes, beans offer a very real break in largely cereal crop based rotations, giving the opportunity to control weeds both physically and with a different chemical armoury, therefore assisting in addressing the issue of developing pernicious weed

populations. Weeds such as blackgrass have, in some areas, become extremely expensive or even impossible to control with conventional agrochemical tools and can have enormous negative impact on yields. In places, this has made cereal cropping almost unviable, hence beans in a wider rotation offer an opportunity to fight back and establish more robust cropping practices.

Soil borne diseases such as verticillium wilt, (Ref. 3) clubroot (Ref. 4) and take-all (Ref. 5) are becoming real barriers to sustainable productivity.

For growers used to producing oilseed rape and wheat, or any other crops in a close cropping sequence, the benefits of beans in extending their rotation are significant.

Of course, this does not mean that beans are without their own problems, and close sequence cropping of pulses should also be avoided. It is recommended that beans should not be grown in a closer than 1:5 rotation and seed should always be checked for freedom from stem nematode and ascochyta.

The nature of bean physiology has an impact upon annual workload on farm. A spring-sown crop opens the autumn workload window and the general maturity of the crop means it rarely competes with the winter wheat harvest. Earlier maturing varieties can be selected in northern growing areas and desiccation techniques can be adopted where even a few days can be a huge advantage.

The market for beans is diverse but the primary outlets are for human consumption and for animal feed. By far the largest human consumption market is in the export trade and depends upon having a bright and pale colour sample with good visual appearance. Crops making the grade will normally receive a premium which can be £15-25/t. The visual appearance is largely irrelevant for the animal feed market, however, a major barrier for the feed merchants is continuity of supply. In recent times this has been less of an issue and the feed merchants have enthusiastically taken the additional quantity of home-produced protein for processing. There is every indication that given reliable availability they will continue to do so.

Nor does any of this affect the fact that home- produced beans remain an excellent feed and an opportunity to retain more profit within the farm enterprise.

So often in articles such as this you will find gross margin figures quoted in an attempt to persuade you that the crop being discussed is the most profitable, or at least comparable, to others you might consider. If we did that here for beans you would find that they more than hold their own - even without trying to monetarise the many agronomic and practical benefits outlined above, most of which are misleadingly accrued in and attributed to the following crops.

In reality, crop gross margin presentations are rarely accurate, for unless they take account of an individual's costs and performance, they can never truly represent a specific farm enterprise. The work of the PGRO is aimed at trying to improve the ability of growers to increase their output and profitability from pulse crops.

The leading growers do not have significantly greater input costs than anyone else and yet reach yields of 8 t/ha or more - measured against the average of nearer 4 t/ha. Hence, there are clearly a lot of possibilities to make a nonsense of many of the theoretical gross margins presented.

Whilst most farmers are almost certain to see the new EFA requirements as irritating, the reality is the same for all crops previously grown on EFA areas – the changes are not a peculiarity of beans. Growers are going to simply have to look elsewhere, to hedgerows, copses, field margins, catch and cover crops and fallow to meet their 5% obligations. The key message to take away from all the above is that - with a little attention to detail - there is some serious profit to be had on farm from pulses, and that fact has not changed.

Those who have been growing beans will, hopefully, have realised that it is a crop that offers so much more than the opportunity to tick a box for the regulator and, after full consideration, will keep beans in their well-deserved place in the farm's rotation policy.

References:

Ref. 1. http://www.agribrief.co.uk/generalpolicy/2018-greening-rules-confirmed/

Ref. 2. https://dairy.ahdb.org.uk/market-information/farm-expenses/fertiliser-prices/uk-fertiliser-prices/#.WY2bl1WGPIU

Ref. 3. https://cereals.ahdb.org.uk/media/136986/is22_importance_of_verticillium_wilt_in_oilseed_rape.pdf

Ref. 4. https://cereals.ahdb.org.uk/media/178197/is44-managing-clubroot-in-oilseed-rape.pdf

Ref. 5. https://cereals.ahdb.org.uk/cereal-disease-encyclopedia/diseases/take-all.aspx

t: 01458 252 281
e: info@kelvincave.com
kelvincave.com