 **PGRO Briefing Papers  31 March 2020**

**PGRO prepared a series of briefing papers in March that were sent to the UK Government and the key UK agricultural press on the value of UK pulses from a number of perspectives. The text of these three papers is reproduced below:**

**1. UK PULSE CROPS - READY TO SUPPORT A HEALTHIER NATION**

**It has been made clear that farming subsidies will change significantly upon leaving the EU, by rewarding activities delivering ‘public goods’. The New Agriculture Bill 2019-20 outlines the Secretary of State’s (SoS) powers to give financial assistance, “… *having regard to the need to encourage the production of food by producers in England and its production by them in an environmentally sustainable way …*” The significant environmental benefits of pulse crops are well documented, but the role their greater exploitation in diet and the positive impact their consumption, can have on human health is less well appreciated.**

**Pulses crops - drivers of a healthier population:**

“The UK-wide NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with wider costs to society estimated to reach £49.9 billion per year” (<https://www.gov.uk/government/publications/health-matters-obesity-and-the-food-environment/health-matters-obesity-and-the-food-environment--2> published 31/03/2017). It is well proven that the western diet must change to tackle obesity and lower the burden on the health services caused by unhealthy consumption.

* The consumption of pulses is widely recognised by dieticians, physicians and researchers as part of a well -balanced diet. The UK Population is facing a health care crisis and pulses have a significant role to play in healthy living. Pulses are recognised by the NHS Live Well recommendations for their role in diabetes control, maintaining a healthy heart, and as part of the five daily portions of fruit and veg campaign.
* Densely packed with protein, pulses are rich in complex carbohydrates, micronutrients, minerals and vitamins, low in fat and rich in fibre. Pulses are excellent for managing digestive health and regulating energy levels in human beings.
* Pulses are low glycaemic index foods and release their energy slowly, preventing surges in blood glucose, a key element in the control of diabetes. Pulses are gluten-free and ideal for those with intolerances or coeliac disease. Additionally, pulses are low in cholesterol, fat and sodium and can contribute to effective control of heart and blood health issues.
* A dietary change to include a greater proportion of vegetable protein from pulses has enormous potential benefits to society. By contributing to a healthier diet and tackling related health issues, they can reduce the cost burdens those issues impose upon the NHS, and in the process deliver a healthier more economically productive population.
* To deliver the health benefits of pulses, a strategy promoting healthy choices in education and all public bodies is needed, alongside provision of tasty, healthy diets that include pulses.
* Encouragement of UK pulse production and UK processing and ingredient development would help realise dietary benefits and reduce reliance upon imported ingredients.

**An enhanced political impetus for UK pulse production would encourage plant breeding effort to commercialise pulse varieties well suited to the UK’s changing climate, stimulate new industries and products, as well as promoting environmental and dietary benefits for human health**. **The procurement policy of public bodies could stimulate the wider education process about the health and other benefits of pulses - leading to healthier, tasty, attractive diets that include pulses.**

**2. THE ROLE OF PULSE CROPS IN A SUSTAINABLE ARABLE SYSTEM IN THE UK**

**The environmental challenge**

The attention of arable farmers will be drawn to powers focusing on activities that protect and improve the environment; prevent, reduce or protect from environmental hazards; mitigate or adapt to climate change; improve the health of plants; and improve the quality of soil.

In this context, pulses are significantly under-exploited. Current pulses include peas and field beans but the future presents opportunity for lentils, chickpeas and numerous types of dried beans.

The evidence shows clear benefits in terms of sustainability from including pulses in farming rotations - benefits widely recognised by scientific researchers, environmental groups and agronomists worldwide.

* The NFU’s ambitious goal of reaching net zero greenhouse gas (GHG) emissions across the whole of agriculture in England and Wales by 2040 in contribution to the UK’s ambition of net zero by 2050. Production of Urea and Nitrate fertilisers is a significant contributor to the greenhouse gas emissions. Pulses are legumes and require no nitrogenous fertilisers, thereby decreasing significant environmental damage from their production and use.
* Pulses are also considered low cost crops, requiring relatively few applications of pesticides.
* Diversity in the natural environment isenhanced by diversity in the cropping environment and the use of a wider crop rotation. Pulse crop production facilitates that diversity.
* The extended flowering pattern of pulse crops provides valuable bee feeding habitat, especially early in the year. In turn, the pulse crops benefit from improved pollination services bees provide.
* Clear scientific evidence confirms the positive benefits of beans and peas to pollinators, insects and birds, again increasing biodiversity and making their production highly compatible and beneficial with wilding measures for crop edges.
* In addition, growing a wider range of crops encourages diverse habitats and feeding opportunities for wildlife, both above and below ground.
* Pulse crops are highly symbiotic with soil microflora, increasing biodiversity and an enhanced more resilient, fertile soil condition. Subsequent crops perform better after pulses have been grown.
* Pulses associate strongly with mycorrhizal fungi and emit exudates from their roots, which significantly improves the availability and release other nutrients from the soil. They also cause soil particle aggregation, improved friability and improved soil structure. This improves soil drainage when wet - and gives a healthier soil microbiome and increased organic matter levels so that water retention is improved in dry periods.
* Water and land use efficiency is significantly greater when producing vegetable rather than animal protein. Clearly pulse crops offer this opportunity on a wider scale.
* ***It is difficult to find another group of crops that offer more positive potential for environmental good and long-term sustainability than legumes. Policies to encourage production of existing and novel pulse crops would provide significant benefits to the environment and society as a whole.***

**3. WIDER OPPORTUNITIES FOR THE UK WITH THE ENCOURAGEMENT OF AN EXPANDED PULSE INDUSTRY**

**Opportunities for the UK in developing the pulses industry**

What generally receives less focus are the significant wider opportunities for the UK with the encouragement of an expanded Pulse industry.

* UK pulse production is largely restricted to peas and field beans. Yet many other types that could be adapted for UK production are produced around the world, presenting the opportunity for diversification into lentils, chickpeas, lupins and dried beans (including baked bean types).
* With increased pulse production, the UK could become more self-sufficient in food production, reducing imports and the detrimental environmental impact in other countries of our soya consumption.
* For decades investment in pulse crops has been at a very low level - yet the Canadian model of public investment directed at improving reliable pulse production built them a world leading, vibrant market sector. Similarly, the UK is presented with an opportunity for genetic improvements, processing, utilisation, agronomy and sustainable production systems.
* An emphasis on UK vegetable protein production for human consumption would encourage breeding effort for selections suited to the UK’s climate, providing the opportunity for new products with economic environmental and dietary benefits, produced in the UK.
* A huge opportunity is presented by changing dietary habits by flexitarians, vegetarianism and veganism, yet the processing industry infrastructure is absent in the UK. Processing preferences currently demand yellow peas and faba beans, pulses familiar to UK growers. Processing requires investment if the UK is not to become solely reliant upon imports of value-added food ingredients.
* The UK imports over 1 million tonnes of soya annually for animal feed production. The current use of pulses in this sector is too small for statistical reporting. UK Pulses represent an alternative source of protein and starch that can be used by animal feed producers. The primary restriction in this market is reliability of supply - second to cost. A greater reliability of supply presents the opportunity to improve food security in the UK.

***An enhanced political impetus for UK pulse production would encourage plant breeding and selection effort to commercialise pulse varieties suited to the UK’s climate. This in turn would enhance their production in the UK, providing new industries and products alongside environmental and dietary benefits.***