**RRes Press Release 11 Feb 2021 Soybean could help diversify crop production in the UK says scientists**

*Plant breeding had made the crop a more viable choice*

A new study has shown that soybean could be more widely farmed in the UK.

The report’s authors from Rothamsted Research say the crop, which is currently only grown in very limited quantities, could be more successful across southern England. Climate change will mean it could also be grown for profit as far north at the Scottish borders within just a few decades.

Lead author, Kevin Coleman said: “Our results suggest that by 2050 soybean should be a viable crop across most of England and south Wales.

“Yields would be enough to make it an economically attractive option for farmers, with the added benefits of reduced nitrogen fertiliser needs and the fact that soybean has very few pests or diseases here.”

Agriculture in the UK lacks diversification, say the authors, and would greatly benefit from an economically viable, nitrogen fixing legume that breaks the pest, competitor or disease cycles in the main cash crops that dominate current rotations.

Most of the world’s soybean is currently grown in the Americas and 3.2M tonnes are imported into the UK each year, where it is mainly used to feed livestock.

It is also processed into popular vegan diet staples such as meat-free sausages and burgers, milk substitutes and tofu.

Recent advances in plant breeding have produced easy to harvest soybean varieties suitable for the UK’s cold, wet climate – overcoming what were the main barriers to take up by farmers.

Over three years the researchers grew 14 different varieties at two sites in England, and then used modelling to extrapolate the results to 26 sites across the UK.

In addition, the model was used to predict how soybean would mature and the associated yield using weather data under current, near-future (2041-60), and far-future (2081-2100) climate scenarios.

The analysis revealed that under current climate, early developing varieties will mature in the south of the UK, but the probability of failure increases with latitude.

“Under climate change some of these varieties are likely to mature as far north as southern Scotland,” said Coleman. “With greater levels of CO 2, yield is predicted to increase by as much as half a tonne per hectare at some sites in the far future, but this is tempered by other effects of climate change meaning that for most sites no meaningful increase in yield is expected.

“However, with climate change, varieties that mature later will become viable in the south and this will also have positive implications on yield potential.”

Based on the estimated price of soybean and associated variable costs a 2 tonne per hectare crop could result in a profit comparable to that of field beans.

“Soybean is likely to be a viable crop in the UK and for similar climates at similar latitudes in Northern Europe in the future,” said Coleman. “The right variety must be selected for the local climate and growing season characteristics. Providing those varieties can match the quality of imported soybean, local markets should be found. The financial attractiveness of the crop will be determined by the margin achieved over growing costs, which is dependent upon how the grower values the additional benefits of the crop such as spreading workload, weed control and the benefit to rotation.”

Publication :

*Coleman, K., Whitmore, A. P., Hassall, K. L., Shield, I. F., Semenov, M. A., Dobermann, A., Bourhis, Y., Eskandary, A. and Milne, A. E. 2021. The potential for soybean to diversify the production of plant-based protein in the UK. Science of the Total Environment. 767, p. 144903. https://doi.org/10.1016/j.scitotenv.2020.144903*