

Genetic improvement of pea to replace soyabean in the diets of poultry and monogastric livestock

A challenge faced by the UK and EU livestock sector is the current shortfall in domestically produced protein for animal feed. The UK is almost completely reliant on imported soya bean and soya meal to make up this deficit. We are addressing this issue by applying new genetic approaches to improve the nutritional value of pea (protein quality and content), allowing us to develop new varieties of pea that can replace soya products in UK agriculture, thus improving the efficiency and sustainability of UK livestock production



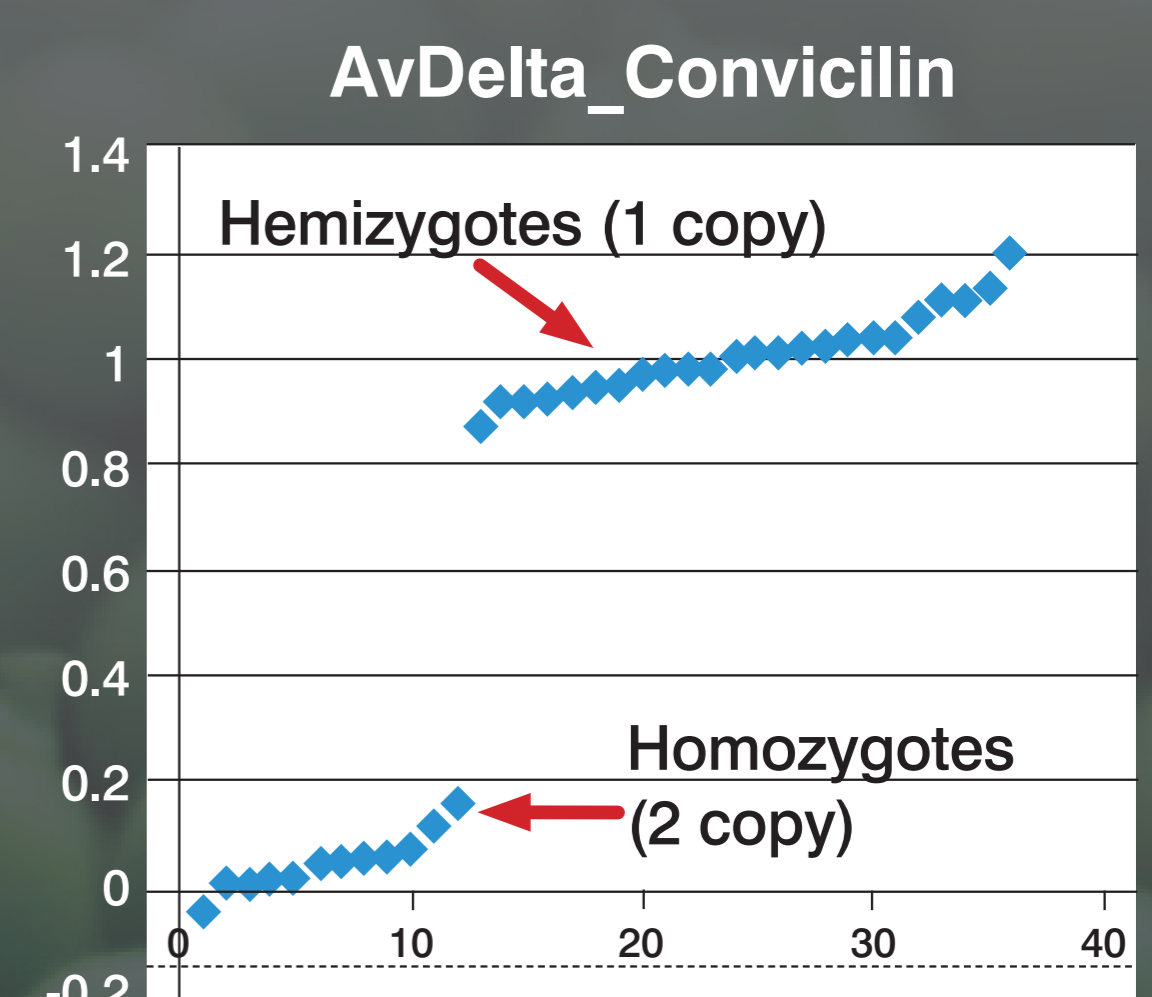
Using knowledge from previous projects, this project will:

- Establish a scientific platform for precision breeding of pea varieties with enhanced protein content alongside other agronomic traits (yield and disease resistance).
- Fully characterise novel mutations affecting seed protein metabolism at the proteomic, metabolomic and agronomic level.
- Combine mutations affecting seed protein metabolism and provide a comprehensive analysis of the combinations, defining those with substantial benefits to composition.
- Incorporate the mutations into commercial, high-yielding pea varieties using marker assisted selection technology developed within the project.
- Analyse the agronomic impact of incorporating the mutations into commercial pea varieties.
- Quantify the potential value of novel pea variants to replace soya products in poultry and pig diets and impact on growth rates and feed conversion efficiencies.
- Model the economic and environmental costs of including peas in monogastric diets.

The project represents a paradigm shift in pea breeding and the breeding of varieties for sustainable animal production.



Taqman assays identify individuals with one or two copies of target genes



Project Partners:



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