Title: New Grain Legume for Layers
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Summary

The Australian Egg Industry is currently seen as a potential market for a new type of grain, Lathyrus. The grain has previously been trialled in farming systems of southern Australia due to benefits of being adapted to low-to-medium rainfall areas and of good quality for animal feed. However, a neurotoxin ODAP found in the seed has been linked with a paralysis in hens known as “lathyrism”.

Since one of the goals of establishing Lathryus cultivation in Australia was to develop animal feed markets, it was decided to investigate the use of Lathryus cicero cultivar Chalus in trials with laying hens.

The Centre for Legumes in Mediterranean Agriculture (CLIMA), University of Western Australia developed Chalus in 1998 and was shown in extensive studies to have low levels of neurotoxins. Chalus was also available in sufficient volume for animal feed testing and had shown good adaptation to climate across southern Australia.

This study examined long term feeding trials of Chalus in order to demonstrate the safety of the grain and show that production and egg quality were not adversely affected. The present study found that hens were not affected by the neurotoxin in the diet and did not affect consumers of eggs or bird tissue. Any consumption of these low levels of ODAP in the hens and the eggs would be too low to affect humans or animals. Studies of human consumption of the neurotoxin have shown that regular consumption of grain at levels 3000 times the levels found in this study are sufficient to cause lathyrism symptoms, only if the grain is consumed exclusively and under circumstances of malnourishment.

In addition, use of Chalus showed equal or marginally better egg quality characters and yolk colour in comparison to diets of field pea and lupins. The grain price of Chalus is also expected to be favourably comparable.

Conclusive evidence that safety is no longer an issue for the use of Chalus in layer diets has allowed for CLIMA to develop future cultivars of Lathyrus species which are even lower in neurotoxin levels. The adoption of these cultivars will lead to a stable supply of grain for the egg industry and thus ensuring access to a low cost, high quality feed ingredient. Wide dissemination of these results will go a long way to establishing Lathyrus species as a choice for farmers wishing to grow a grain legume in their crop rotation system.