

Common vetch (*Vicia sativa* cv. Morava) is an alternative protein source in pig diets

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Common vetch (*Vicia sativa*) is an annual legume grown in the Mallee region of southern Australia during winter. Approximately 230,000 ha of vetch was sown in Australia in 2001 but only about 30,000 tonne of grain was harvested (Danielle Moore, pers. comm.). Vetch has the potential to be a valuable protein source in pig diets as it contains 284 g crude protein/kg, 17.7 g lysine/kg and 14.3 MJ digestible energy per kg (1). Despite this, the use of vetch grain in pig diets has not been recommended due to the anti-nutritional properties of traditional vetch varieties, which can have adverse effects on feed intake and growth performance (2). The mature seed contains the neurotoxin, γ -glutamyl- β -cyanoalanine, which affects the conversion of methionine to cysteine, and has indirect effects on glutathione metabolism (3). However, several varieties of vetch have low levels of this toxin. For example, cyanoalanine concentrations of 9–12 g/kg and ~13 g/kg have been reported in Blanche fleur and Languedoc varieties respectively, while Morava vetch is reported to contain cyanoalanine levels less than 7 g/kg (Rade Matic, pers. comm.). The aim of this investigation was to determine the maximum inclusion level of common vetch (*Vicia sativa* cv. Morava) in the diet of growing pigs.

The experiment involved 312 pigs that were selected at 91 days of age and 37.6 ± 0.24 kg (mean \pm s.e) liveweight, and group housed under commercial conditions. Four pens of 19–20 pigs were allocated to each of four diets in a randomised block design. Each diet was formulated to contain 11.6 g lysine/kg and 14 MJ DE/kg, with vetch replacing peas at levels of 0, 75, 150 and 225 g/kg. Pigs were fed their allocated experimental grower diets *ad libitum* between 91 and 119 days of age.

| | Level of Vetch (g/kg) | | | | Significance SED | Linear | Quadratic |
|-----------------------|-----------------------|-------|-------|-------|---------------------|--------|-----------|
| | 0 | 75 | 150 | 225 | | | |
| Liveweight (kg) | | | | | | | |
| Start | 41.4 | 42.1 | 41.9 | 41.3 | 1.0 | n.s. | n.s. |
| Finish | 66.3 | 65.2 | 66.7 | 66.0 | 1.6 | n.s. | n.s. |
| Growth rate (g/day) | | | | | | | |
| 91–119 days | 889.0 | 828.0 | 887.0 | 882.0 | 66.0 | n.s. | n.s. |
| Feed intake (kg/day) | | | | | | | |
| 91–119 days | 1.94 | 1.91 | 1.89 | 1.85 | 0.07 | n.s. | n.s. |
| Feed conversion ratio | | | | | | | |
| 91–119 days | 2.18 | 2.34 | 2.16 | 2.10 | 0.13 | n.s. | n.s. |

n.s., not significant at $P = 0.05$.

Overall growth performance of pigs was satisfactory and typical of that observed in this piggery. There were no significant linear or quadratic effects of dietary vetch on growth rate, feed intake or feed conversion ratio of pigs between 91 and 119 days of age at inclusion rates of up to 225 g/kg vetch. These data suggest that growing pigs housed in groups and raised under commercial conditions can be fed up to 225 g/kg of common vetch (*Vicia sativa* cv. Morava) between 91 and 119 days of age without affecting the overall growth performance. Therefore, common vetch (*Vicia sativa* cv. Morava) has the potential to be a valuable, alternative vegetable protein source for inclusion in growing pig diets.

References

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