



FARMER RESOURCE **ALTERNATIVE PROTEIN FEED SOURCES**

Canola meal

An alternative protein source for laying hens

Currently, there is increased awareness of soybean meal's contribution to higher carbon footprint associated with deforestation, land-use change, and greenhouse gas emissions.

Feed production for layers currently contributes approximately 42-62% of all egg production emissions. Identifying opportunities to reduce emissions arising from feed production will significantly lower the egg industry's carbon footprint.

This fact sheet identifies the nutritional characteristics and limitations of potential alternative protein ingredients to replace soybean meal (SBM) as identified in *Alternative protein-rich ingredients for Australian pigs and laying hens* (2023).

Canola meal was identified as one of the promising unconventional alternative ingredients which can potentially replace soybean meal in laying hen's diet.

Canola meal is a protein-rich ingredient comparable to soybean meal and can be used as a substitute for it in livestock feed. Table 1 highlights the nutritional characteristics of canola meal:

Table 1: Canola meal - Nutritional characteristics

- ✓ Rich in fibre
- ✓ Good source of protein and lipids
- ✓ Cost-effective alternative
- ✓ **Can be included in a layer hen diet up to 25%**

Table 2 discusses mitigation strategies to counteract the nutritional limitations of canola meal.

Table 2: Nutritional limitations of canola meal and mitigation strategies

Limitations	Mitigation Strategy
Contains erucic acid, glucosinolates, tannins, choline and sinapine, which can be of concern to egg producers	✓ Use double zero varieties of canola meal to prevent the interference of erucic acid, glucosinolates, tannins, choline and Sinapine
✗ High-fibre and low in lysine ✗ Lower than SBM in energy values ✗ Lower than SBM in nutritive values	✓ Formulate diet based on concentration of total digestible amino acids ✓ Use of crystalline amino acids to balance the amino acid profile
✗ High levels of tannins in Canola meal	✓ Tannins are usually found in the seed coat, which is often removed for poultry consumption

Table 3: Chemical composition of canola meal "00" – solvent extracted

Protein (%)	ME (kcal/kg)	Calcium (%)	Available Phosphorous (%)	Lysine (%)
38.1%	8.6MJ/kg DM	8.6g/kg DM	12.7%	5.3%

Table 4: Carbon footprint of canola meal

- ✓ Canola production can be offset by canola's by-products
- ✓ Can be farmed in a mixed farming set up
- ▶ **Environmental impact of producing 1kg: 0.222 kg CO₂-e/kg***

*mixed farming set up