



# Final Report Summary

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Review of the nutrient content of  
Australian feed ingredients



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## Background

**Producing feed for broilers is the primary cost of chicken meat production. Thus, formulation of a cost-effective diet that will meet broiler nutritional requirements is critical for an efficient and profitable industry. To ensure this objective can be met, the nutrient specifications of feed ingredients must be accurately determined. However, Australian broiler nutritionists have expressed concern because many nutrient specification databases contain dated information and a small sample size, or lack Australia-specific data. Additionally, cross-checking, compiling and maintaining current and reliable data is time consuming and costly for individual nutritionists.**

**Therefore, the compilation and assessment of the nutrient specifications will help Australian broiler nutritionists solve this challenge by aggregating the most up-to-date information available into one resource. It will also highlight ingredients or nutrients that are lacking data, or are highly variable and need further characterisation. This is important to help companies identify any areas that lack and have high demand for new data. This process will ensure the characterisation of ingredients may be improved for updates of the database.**

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## Objectives

The objective of this project was to directly address the expressed need from chicken meat integrator nutritionists to compile and review current nutrient specifications.

This project's aim was to compile a database of Australian and global feed ingredient nutrient specifications for common Australian feedstuffs used in poultry diets. These specifications were obtained from 12 commercial companies, and where data is lacking, from publications or other online

sources. The database was assessed for the amount of variation, and whether the number of samples was sufficient to obtain a good estimate of the nutrient value of the feedstuff, or if more data was needed. The database is available for poultry nutritionists, industry and researchers at [agrifutures.com.au/Australian-feed-ingredients](http://agrifutures.com.au/Australian-feed-ingredients).

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## Research

The first phase of this project involved a survey of integrated Australian broiler nutritionists to identify the common feed ingredients used by industry, and the nutrient specifications they would like included in the database. After gaining access and permissions to publish the data from the source companies, the data was collected for each ingredient identified in the survey, cross-checked, and compiled into the main database. Data was also collected from publications to supplement areas that were lacking.

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## Outcomes and recommendations

The database contains recent Australian and global data on 42 common Australian feed ingredients, with 102 nutrient specifications per ingredient. The data was provided by source companies, including Adisseo, Ajinomoto, Cootamundra Oilseeds, DuPont, Evonik, Poultry Hub, Novus, Premier Nutrition, and RCI. Data was also obtained from open access databases Feed Grain Partnership, Brazilian Tables, Feedipedia, and INRA.

One of the main observations from the database is that the standard deviation or variability of the Australian data was quite high, particularly in relation to global data. While we have some excellent data, it is clear that our vast continent brings challenges in consistency because the wide variation of environments, climates, growing methods, cultivars, etc. all likely contribute to this variability. It is problematic because the Australian data is almost as variable as the global data, but contains a fraction of the number of samples. Thus, the accuracy of predicting the true mean of the population is poor for many ingredient nutrient specifications. However, the present data may be quickly enhanced by ensuring all data provided presents the number of samples or standard deviation, which is critical for assessing the extent of variation in our feed ingredients and, thus, the level of uncertainty in diet formulations.

There are three key recommendations for the industry resulting from this project:

1. Increase the amount of recent Australian nutrient data, where possible. In particular, areas of high variation or that lack mean values or standard deviations include non-starch polysaccharide measurement, minerals (particularly digestible calcium), digestible amino acids and starch (in some cereals such as triticale, sorghum, corn, and oats).
2. Focus strongly on improving our sampling methodology and reporting practices within industry and research to ensure an accurate representation of the nutrient content and variability in Australian feed ingredients.
3. Continue to capture new data (including the mean, sample number, standard deviation, and information on the distribution of the data, i.e. does it follow a normal distribution?). We must also progressively backfill older data (and add missing descriptive data, where possible) to make it more robust so that this resource can continue to compile and deliver relevant information to nutritionists and researchers. With this extra descriptive data, nutritionists may use stochastic feed formulation to enhance the accuracy of Australia's poultry diets.

## Implications

This database gives poultry nutritionists, industry and researchers an up-to-date resource of nutrient specifications and descriptive data for Australian feed ingredients. It also identifies feed ingredients and nutrients in need of further analysis and study. This database is expected to greatly improve the accuracy of feed formulation, which should improve the efficiency and profitability of the Australian chicken meat industry.

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