

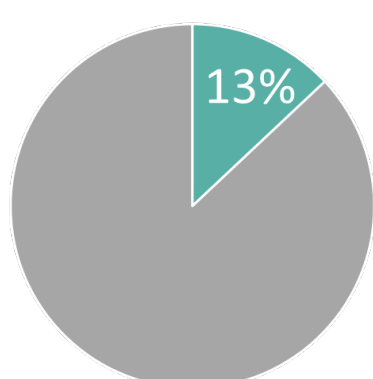
What is STOCHASTIC FEED FORMULATION?

And How Can You Use it to Better
Meet Poultry Nutrient Requirements?

FEED INGREDIENTS ARE VARIABLE

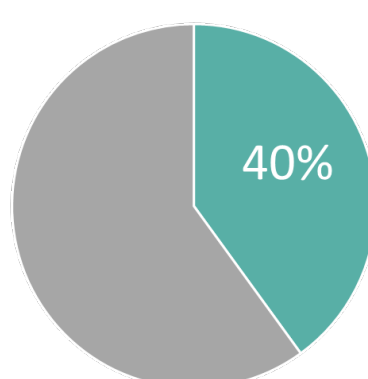
Only 13% of Australian and 40% of global reported nutrients in feed ingredients are >90% accuracy due to limited sample numbers⁽¹⁾

Australian Data



■ Adequate ■ Inadequate

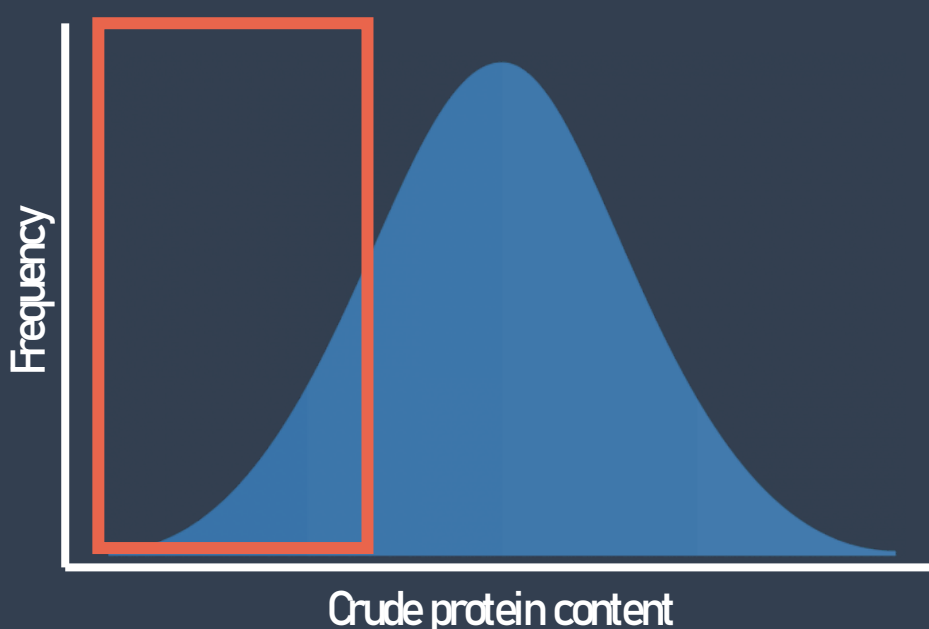
Global Data



■ Adequate ■ Inadequate

THIS VARIABILITY MEANS

Within diets formulated to 192 g/kg crude protein from book values,
1 in 10 diets will fall below 182 g/kg CP⁽²⁾



This May Reduce Profits by 63%⁽²⁾

WHAT CAN WE DO ABOUT IT?

Stochastic feed formulation

The term 'Stochastic' comes from the Greek word meaning 'skilful at aiming'.

Stochastic feed formulation uses the standard deviation (variability) of nutrients within feed ingredients to manipulate the probability that the diet will fall within the desired nutrient levels.

Essentially, you set the probability of attaining the desired nutrient requirement of your diet that you are comfortable with.

BENEFITS

Minimise the risk of not meeting the nutrient requirements of the animal

More accurate safety margins via better understanding of the variation within feed ingredients⁽³⁾

Learn More

(1) <https://extensionaus.com.au/chickenmeatrde/feed-database/>

(2) <https://doi.org/10.1016/j.japr.2020.100129>

(3) <https://doi.org/10.1016/j.japr.2020.100137>

Questions?

Contact Dr Amy Moss, University of New England (amoss22@une.edu.au)

What is

MAX-PROFIT FEED FORMULATION?



And How Can You Use it to Maximise Profits?

To understand max-profit feed formulation, we need to know the

ASSUMPTIONS

we make when we

FORMULATE DIETS

The **least cost model** provides the minimum nutrient requirements at the least cost. It assumes that minimising feed costs will maximise profits, or,

$$\text{Inputs} = \text{Profits}$$

However, we know that this isn't true. The inputs combined with production equal profits, not just feed costs alone.

A **max-profit model** is **more flexible/practical**, and 'accounts for the response of the animal to the feed (ie, by considering outputs);

$$\text{Outputs} - \text{Inputs} = \text{Profits}$$

THIS FLEXIBILITY MEANS

We can we can formulate diets based on their outcome, not just their nutrient concentration.

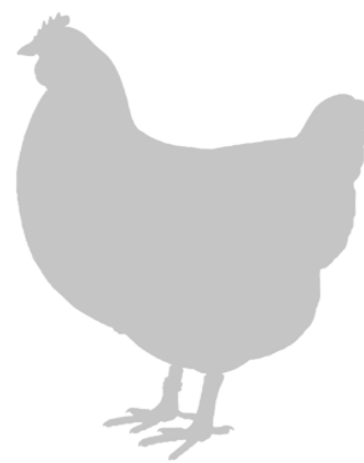
Nutrient requirement
(static)



Nutrient response
(dynamic)

BENEFITS

- Maximise profitability
- Increase flexibility
- Capacity to cope in volatile markets



Example: A layer farm may decide to increase dietary methionine level above the nutrient requirement to improve FCR. The diet will be more expensive, but if the hen eats less, it may be more profitable⁽¹⁾. This opportunity is missed with least-cost feed formulation alone.

Learn More

(1) <https://doi.org/10.1016/j.japr.2020.100137>

Questions?

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