

# PIC® Nutrition Update

March 2016

## Economic model for optimum Tryptophan:Lysine ratio for nursery and finishing pigs

This tool, developed by Kansas State University and Ajinomoto Heartland, calculates the most economical Standardized Ileal Digestible (SID) Tryptophan (Trp) to Lysine (Lys) ratio by taking into account information specific to your production system and market price. The underlying models were developed using PIC genetics under commercial conditions. The tool also takes into account if the production system is marketing pigs on a fixed time versus a fixed weight basis and the impact of different SID Trp:Lys to maximize profitability.

### Trp:Lys economic model for nursery and finishing pigs

Use this program to estimate the most economical Trp:Lys level given local market conditions.

If increasing the SID Trp:Lys ratio does NOT improve growth

- 1) Is the lysine above the requirement? If lysine is above the requirement, the optimal Trp:Lys ratio will be lower than predicted.
- 2) Do you have different nutrient loadings for tryptophan and lysine than those used for the projections? Please see the ratios in the "Ingredient" tab.
- 3) Is another amino acid deficient? If another amino acid, such as methionine or threonine is deficient, it may be more limiting than tryptophan in the diet.

Select phase of production:

Prediction equations were developed under commercial conditions by Gonçalves et al. (2015) and published in the Journal of Animal Science(see references tab).

### Economic Calculator for Optimal Tryptophan:Lysine Ratio for Finishing Pigs

Would you like to enter your own diet costs or use default values?

Current Trp:Lys ratio (select closest ratio): 16.5

Finisher weight gained, lb	230.0
Finisher ADG, lb	1.90
Finisher S/G	2.80
Market price, \$/lb live	\$0.50
Value of pig space, \$/day	\$0.11

these cells are not used when using default values

\$/ton	\$260.00
	\$265.00
	\$270.00
	\$275.00
	\$280.00

these numbers are needed when using default values:

Mid-finisher diet cost at 21% Trp:Lys, \$/ton	\$184.00
Corn, \$/bushel	\$3.60
L-tryptophan, \$/lb	\$5.75

Trp:Lys ratio that provides maximal profit:

Fixed weight basis	17.5
Fixed time basis	21.6

Increase in profit if fed ratio with maximal profit:

Fixed weight basis, \$/pig	\$0.44
Fixed time basis, \$/pig	\$1.69

Increase in profit for different ratios, \$/pig							
Item	15.5	16.5	17.5	18.5	19.5	20.5	21.5
Fixed weight	-\$1.76	\$0.00	\$0.34	\$0.20	-\$0.03	-\$0.29	-\$0.64
Fixed time	-\$1.44	\$0.00	\$0.73	\$1.15	\$1.43	\$1.61	\$1.69

Click [here](#) to download the free calculator and [here](#) to download the full PIC nutrition update on Tryptophan:Lysine ratio.

For additional information please contact your PIC Account Manager or PIC Technical Services.

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