

User Manual for UK - AA Limiting Order Excel Spreadsheet

1. Macro activation
2. Getting started
3. Price change
4. Amino acids composition of feedstuff or requirement for production stages

1. Macro activation

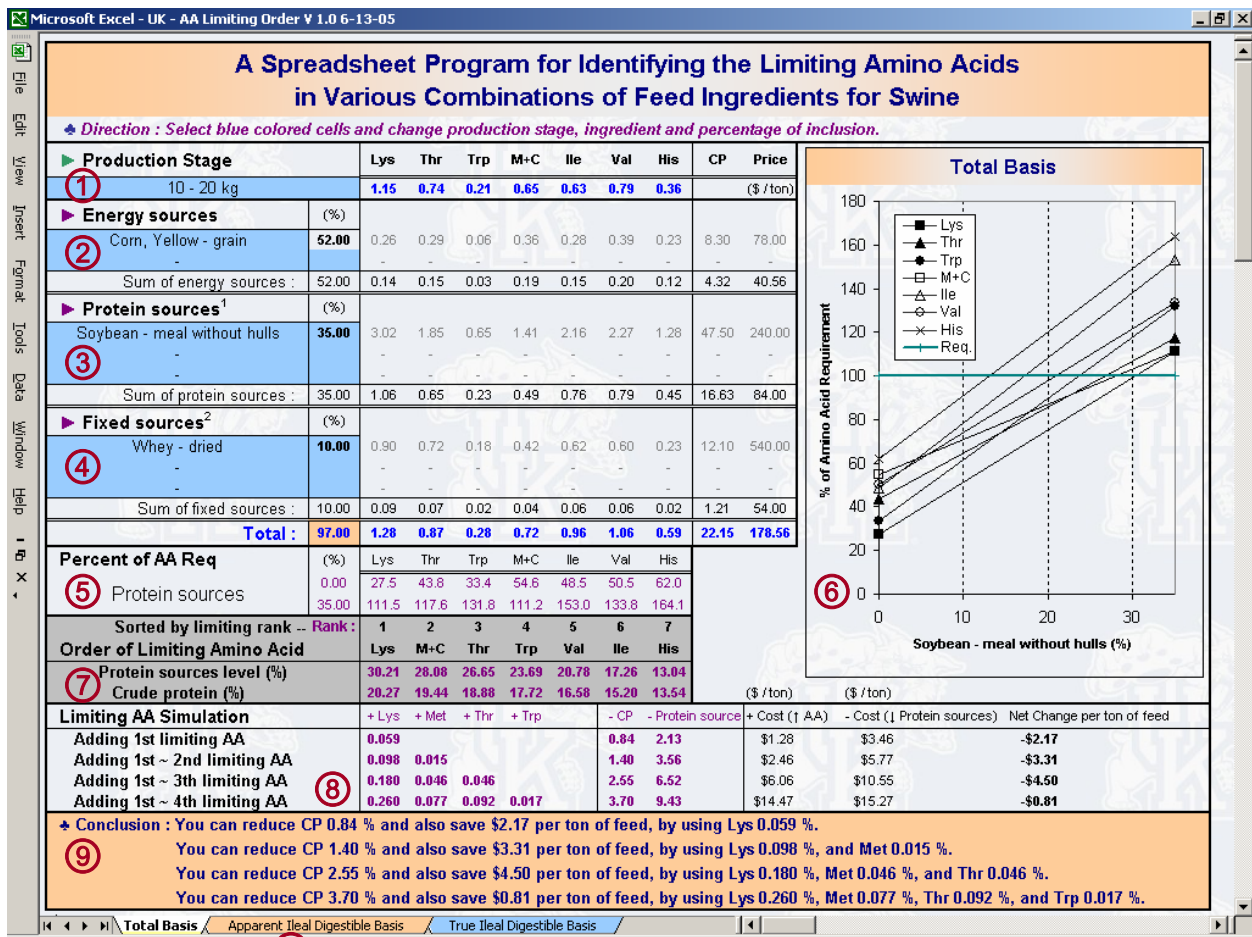
When you open the Excel file,

- If a dialog box opens automatically with a message about macros, choose to "enable macros."
- If this dialog box does not open, you can change the default setting of macro security by the followings:
 - 1) Open Excel and click on the "Tools" menu.
 - 2) Choose "Macro."
 - 3) Click on the "Security". A window will open.
 - 4) Click on the "Security Level" tab.
 - 5) Check your security to "MEDIUM" which will allow you to choose between "enable" and "disable" every time you open a file containing macros.
 - 6) Close the Excel program and open an Excel file containing macro.
 - 7) A dialog box will open automatically with a message about macros. Choose to "enable macros."

2. Getting started

- ① Users can choose a production stage including growth and reproduction.
- ②~④ Users can select feedstuff for energy, protein, and fixed sources, and input the inclusion levels. First energy source = Total - Sum of the others

- ⑤ Amino acids of feed are calculated as percents of the requirements. The inclusion level protein source is zero or input percentage (35%). The balance of the feed is energy source (corn), the inclusion level of fixed source stays the same (10%).
- ⑥ The ratio of feed AA (%) to AA requirement (%) is linearly related to the protein source inclusion level. The percentage of the pig's requirement is plotted for the seven most limiting AA. The green horizontal line gives the AA requirement. The order that the AA intersect the requirement line, going from right to left, determines the order of limitation.
- ⑦ Calculated are protein sources and crude protein level at which the AA lines intersect the horizontal line. Amino acids are horizontally sorted by the limiting order.
- ⑧~⑨ Low protein diet scenarios (by the addition of limiting AA) are given in cost-wise evaluations and the interpretations.
- ⑩ User can move to the other basis tabs.



3. Price change

If you want to input or change the price of feedstuff or crystalline amino acid,

- 1) Select "Total Basis" sheet tab (price input in this sheet will be applied to the other sheets).
- 2) Scroll down below the main screen.
- 3) You will find "Price Input" box.
- 4) Input or change the price as one of the units provided.
- 5) The price will be converted automatically.

Sorted by limiting rank -- Rank: 1 2 3 4 5 6 7

Order of Limiting Amino Acid

Order of Limiting Amino Acid	Lys	M+C	Thr	Trp	Val	Ile	His
Protein sources level (%)	32.82	31.41	30.37	26.24	23.28	19.65	14.75
Crude protein (%)	20.47	19.91	19.50	17.89	16.73	15.30	13.38

Limiting AA Simulation

	+ Lys	+ Met	+ Thr	+ Trp	- CP	- Protein source	+ Cost (1 AA)	- Cost (1 Protein sources)	Net Change per ton of feed
Adding 1st limiting AA	0.039				0.55	1.41	\$0.85	\$2.28	-\$1.44
Adding 1st ~ 2nd limiting AA	0.068	0.011			0.96	2.45	\$1.71	\$3.97	-\$2.27
Adding 1st ~ 3th limiting AA	0.182	0.054	0.064		2.58	6.58	\$6.74	\$10.66	-\$3.92
Adding 1st ~ 4th limiting AA	0.263	0.085	0.111	0.017	3.74	9.54	\$15.27	\$15.45	-\$0.18

Conclusion: You can reduce CP 0.55% and also save \$1.44 per ton of feed, by using Lys 0.039%.

You can reduce CP 0.96% and also save \$2.27 per ton of feed, by using Lys 0.068%, and Met 0.011%.

You can reduce CP 2.58% and also save \$3.92 per ton of feed, by using Lys 0.182%, Met 0.054%, and Thr 0.064%.

You can reduce CP 3.74% and also save \$0.18 per ton of feed, by using Lys 0.263%, Met 0.085%, Thr 0.111%, and Trp 0.017%.

¹ Protein sources will be added at the expense of energy sources. *Cromwell, G. L. and B. G. Kim. 2005. J. Anim. Sci. 83(Suppl. 1): Abst.1125. University of Kentucky*

² Fixed sources will not be changed by the level of protein sources.

	Lys	Thr	Trp	M+C	Ile	Val	His	CP	Price
Ingredient Database									\$/ton
Alfalfa - meal dehydrated, 17% CP	0.74	0.70	0.24	0.43	0.68	0.86	0.37	17.00	150.0
Alfalfa - meal dehydrated, 20% CP	0.90	0.82	0.35	0.60	0.89	1.05	0.38	19.60	160.0
Bakery Waste - dried bakery product	0.27	0.33	0.10	0.41	0.38	0.46	0.24	10.80	120.0
Barley - grain, hullless	0.44	0.40	0.13	0.40	0.41	0.55	0.23	14.90	100.0
Barley - grain, six row	0.36	0.34	0.13	0.37	0.37	0.49	0.22	10.50	100.0
Barley - grain, two row	0.41	0.35	0.11	0.48	0.39	0.52	0.25	11.30	100.0
Beet, Sugar - pulp, dried	0.52	0.38	0.10	0.13	0.31	0.45	0.23	8.60	125.0
Blood - cells, spray dried	8.51	3.38	1.37	1.42	0.49	8.50	6.99	92.00	600.0
Blood - meal, conventional	7.04	4.05	1.08	2.08	0.91	7.05	5.06	77.10	500.0
Blood - meal, flash dried	7.56	4.07	1.06	2.15	0.88	8.03	4.57	87.60	500.0
Blood - meal, spray or ring dried	7.45	3.78	1.48	2.03	1.03	7.03	5.30	88.80	500.0
Blood - plasma, spray dried	6.84	4.72	1.36	3.38	2.71	4.94	2.55	78.00	1500.0
Brewers' Grains - dried	1.08	0.95	0.26	0.94	1.02	1.26	0.53	26.50	80.0
Buckwheat, Common - grain	0.57	0.41	0.17	0.42	0.40	0.56	0.25	11.10	90.0
Canola (Rapeseed) - meal, sol. extr.	2.08	1.59	0.45	1.65	1.43	1.82	0.96	35.60	180.0
Casein - dried	7.35	3.98	1.14	3.11	4.66	6.10	2.82	88.70	2000.0
Cassava (Tapioca or Manioc) - meal	0.12	0.11	0.04	0.09	0.11	0.14	0.08	3.30	100.0

Price Input

US\$ /ton	US\$ /tonne	US\$ /lb	US\$ /kg
150.0	165.0	0.075	0.165
160.0	176.0	0.080	0.176
120.0	132.0	0.060	0.132
100.0	110.0	0.050	0.110
100.0	110.0	0.050	0.110
100.0	110.0	0.050	0.110
125.0	137.5	0.063	0.138
600.0	660.0	0.300	0.660
500.0	550.0	0.250	0.550
500.0	550.0	0.250	0.550
500.0	550.0	0.250	0.550
1500.0	1650.0	0.750	1.650
80.0	88.0	0.040	0.088
90.0	99.0	0.045	0.099
180.0	198.0	0.090	0.198
2000.0	2200.0	1.000	2.200
100.0	110.0	0.050	0.110

ton = 2,000 lbs
tonne = 1,000 kg

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File Edit View Insert Format Tools Data Window Help

Type a question for help

Total Basis Apparent Ileal Digestible Basis True Ileal Digestible Basis

4. Amino acids composition of feedstuff or requirement for production stages

Current amino acids profiles of feedstuff and amino acids requirements are based upon NRC (1998). If you want to change amino acids composition or amino acids requirements,

- 1) Activate (click) the sheet that you want to change amino acids composition.
Make sure to be at the desired sheet tab.
- 2) Click on the "Tools" menu.
- 3) Choose "Protection."
- 4) Click on the "Unprotect sheet."
- 5) Change the amino acids composition or amino acids requirements below the main screen and left of the price input box.
- 6) Click on the "Tools" menu.
- 7) Choose "Protection."
- 8) Click on the "Protect sheet."
- 9) Click "OK" in a dialog box.

Contact Information

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