

The AminoMax Digest

The Future of Amino Acid Nutrition

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There is Science behind AminoMax Pro

AminoMax Pro may be the least variable protein ingredient you will ever use in ration formulation. AminoMax Pro is produced by *independently* treating canola meal and soybean meal and then mixing the two products in our state of the art plant in Watertown, NY. By testing the materials going into the mix, and with the ability to control the manufacturing processes, we can be sure of the quality of what comes out: consistent, highly digestible protein, with a high RUP value. The patented process is controlled by over 400 sensors to make sure the end point is consistent. The normal variability in raw ingredients is compensated in the manufacturing process, resulting in a consistent product you can trust.



1 View of a few of the many sensors that keep AminoMax Pro a consistent high quality product

High value is the goal

There are many sources of high RUP soybean meal products on the market. Soybean meal is an excellent product that readily lends itself to treatment. Soybean meal is easy to treat and increasing RUP improves the meal as a feed ingredient for dairy cattle, however, it does not have an exceptionally good amino acid profile. In order to meet a cow's requirements for milk production, additional meal needs to be provided to hit supplementation levels for key amino acids.

Conversely, canola meal has an excellent amino acid profile. The amino acid composition of canola meal is very close to the amino acid structure of rumen microbes. Contrasting soybean meal, canola meal is very difficult to treat; therefore, there are no high RUP canola meal products currently on the market. The AminoMax process has been proven to increase the digestible RUP content of canola meal.

Let's take a closer look. Table 1 provides some typical results reported by the Cornell Lab, using the method developed by Van Amburgh.

Table 1: Typical results for RUP and RUP digestibility as determined by Cornell University (DM basis)

	Crude Protein	RUP, % of Protein	RUP Digestibility	Digestible RUP, % DM
Soybean meal before treatment	50.5	44.1	82.9	18.5
Soybean meal after treatment	49.6	81.2	88.2	35.5
Canola meal before treatment	42.1	56.5	73.0	17.3
Canola meal after treatment	41.8	73.5	79.2	24.3

As shown above, the AminoMax process improves the RUP content of both soybean meal and canola meal, as determined by Cornell University (Debbie Ross and Mike Van Amburgh). These results are expected from meal that has been heat and mechanically treated; however, that was not the most interesting result. The improvement in RUP digestibility is remarkable. Some treatments used to increase RUP result in a loss in RUP digestibility, whereas the mechanical treatment during the AminoMax process, actually improves the RUP.

However, the table does not show the variability. The RUP content of the soybean meal going into the process can typically vary between 35% to 50%. The same result occurs with canola meal where the RUP can range from about 50% to 60%. However, we find the RUP digestibility of AminoMax processed soybean meal to be close to 90%, and a similar value for canola meal is about 80%- much more consistent than the meals used in the preparation of the product.



2 Expander used to mechanically improve protein digestibility

How does AminoMax compare to other products?

Buying decisions are never easy. Using the values from Table 1, compare AminoMax to soybean meal and canola meal. As mentioned, the RUP of both of these ingredients is more variable than AminoMax Pro. To remain fair, we will assume that the RUP for both values is the highest that we see from our incoming ingredient analysis.

Table 2: Comparing AminoMax to soybean meal and canola meal (DM basis)

	Soybean Meal	AminoMax	% Improvement
Crude Protein, %	50.5	42.5	
RUP, %	50.0*	75.0	
RUP digestibility, %	82.9	81.0	
Digestible RUP, % of meal	20.9	25.8	
Digestible RUP, g/lb.	94.8	118	24.4
Lysine, % of digestible RUP	6.3	6.1	
Available lysine, g/lb.	5.8	7.2	24.1
Methionine, % of digestible RUP	1.30	2.05	
Available methionine, g/lb.	1.2	2.4	50.0
	Canola Meal		
Crude Protein, %	42.1	42.5	
RUP, %	60.0*	75.0	
RUP digestibility, %	73.0	81.0	
Digestible RUP, % of meal	18.5	25.8	
Digestible RUP, g/lb.	84.0	118	40.4
Lysine, % of digestible RUP	5.7	6.1	
Available lysine, g/lb.	4.8	7.2	50.0
Methionine, % of digestible RUP	2.10	2.05	
Available methionine, g/lb.	1.8	2.4	33.3

* These are the highest values, not the average values

As Table 2 shows, using the best possible scenario with respect to the RUP content of the meals, the digestible RUP, as well as available lysine and methionine are all higher with AminoMax Pro than with soybean meal. The lower protein value for the meal in this comparison is noteworthy. While the protein content of AminoMax Pro is lower than soybean meal, the more meaningful values (available lysine and available methionine) are higher.

Furthermore, AminoMax shows improvements over canola meal as well. Again, we used a very high value for RUP for this canola meal and the average for AminoMax Pro. **We find exceptional improvements in digestible RUP**, as well as available lysine and methionine. In reality, the improvements you would expect would be even greater.

We also used a spreadsheet developed by Dr. Tom Tylutki, using the CNCPS 6.5 dynamics to compare AminoMax Pro to other proteins on the market. All values for proprietary products were obtained from the manufacturers' websites. Dr. Tylutki approached the problem in a different way, and asked the questions: How much of each product would you need to supply 500 g of MP? How much would you need to supply 25 grams of available lysine, and how much for 10 grams of available methionine? Based on his extensive experience, those would be reasonable amounts to supply with an added protein source. The program takes many factors into account, but provides clear and concise comparisons.

Results were quite interesting! Let's take a look at Table 3. First, there were big differences between the treated soybean meal products. They are high in protein; therefore, fewer pounds of blood meal and mixed animal protein were needed than for the vegetable proteins. Less AminoMax Pro was required to hit the target metabolizable lysine and methionine than for the soybean meal products! This means that pound for pound, AminoMax Pro supplies less protein than treated soybean meal products, but similar amounts of lysine, and considerably more methionine. Although a bit more AminoMax Pro will be needed, it can easily be used to replace animal protein blends.

Table 3: Comparison of pounds of each product that would be needed to supply 500 gram of metabolizable protein, 25 grams of metabolizable lysine, or 10 grams of metabolizable methionine.

Product	500 g MP	25 g MP Lysine	10 g MP methionine
High RUP soybean meal 1	4.65	3.73	6.00
High RUP soybean meal 2	3.72	3.05	5.17
High RUP soybean meal 3	4.39	3.80	6.66
Blood meal	2.25	1.21	4.21
Animal Protein Mix	1.94	1.10	3.52
AminoMax Pro	3.86	3.11	3.77



Want to know more?

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