



Comparison of Cornell and *in situ* procedures for RUP and protein digestibility

The Gold Standard for analyzing RUP in feed ingredients remains the use of *in situ* procedures. These procedures require surgically modified animals which increase the cost and limit the accessibility of this procedure. Attempts to develop laboratory procedures to replace *in situ* methods have had limited success in duplicating the live animal tests across the wide range of ingredients fed to livestock. Cornell University has proposed a new IV procedure to estimate RUP and protein digestibility.

Split samples of soybean meal and AminoPlus were sent to Cornell and

two commercial laboratories (Lab 1 (*in situ*), Cornell University and Lab 2 (RUP using Cornell procedure). The *in situ* data is within the normal range expected for soybean meal and AminoPlus whereas the Cornell are values slightly higher for soybean meal and much higher for AminoPlus (Table 1). RUP values reported by Lab 2, which used the Cornell procedure, are intermediate for soybean meal and AminoPlus.

	SBM	AP 1	AP 2	AP 3
Lab 1	35.30	76.81	73.87	74.76
Cornell	43.80	93.80	94.80	90.40
Lab 2	39.38	80.82	81.98	82.55

	SBM	AP 1	AP 2	AP 3
Lab 1	84.84	86.75	87.56	89.55
Cornell	91.40	88.00	88.50	92.00
Lab 2	98.00	95.00	90.00	95.00
U of Illinois	91.24	88.24	88.13	89.10

Protein digestibility was estimated by Modified 3-Step (Lab 1), Cornell procedure (Cornell and Lab 2) and cecectomized rooster (University of Illinois) procedures (Table 2).

Digestibility of AminoPlus was comparable to that reported for

soybean meal and reasonably similar across laboratories and procedures. Previous cecectomized rooster data from the University of Illinois (Boucher, et al. JDS 92:4489-4498) reported protein digestibility for soybean meal (90.8 and 90.3%) and SoyPlus® (88.6 and 87.8%) similar to the soybean meal and AminoPlus values reported in this evaluation.

Additional AminoPlus samples submitted to Cornell reported RUP levels slightly lower than the 90.4-94.8% of crude protein values reported in the earlier test; however

these values remained above those typically reported by *in situ* analysis (Table 3). Total tract crude protein

digestibility of these samples remained high and similar to the values reported in the multi-lab/multi-procedure comparison reported in Table 2. Several AminoPlus samples were also evaluated for intestinal protein digestibility at a third commercial laboratory using the Cornell procedure. The results of these samples were 89.5 ± 1.5%.

	AP-1	AP-2	AP-3	AP-4
RUP, % of CP	75.40	82.17	80.78	85.96
TT CP Dig, % of CP	91.12	92.85	90.28	91.68