

Empyreal® 75 Digestibility in Cecectomized Roosters

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Background: Protein digestibility of animal and vegetable origin can be variable due to manufacturing practices and the presence of anti-nutritional factors. To verify the availability of Empyreal 75, an in vivo digestibility study was conducted at the University of Illinois in cecectomized roosters.

Objective: Evaluate the digestibility of Empyreal 75 in cecectomized roosters.

Materials and Methods:

- Four Single-Comb White Leghorn roosters (40 weeks old) were fed about 25 grams of as-is Empyreal 75 in 25 mL of water.
- Excreta was collected for 48 hours, lyophilized, weighed, ground and the parameters analyzed.
- The ingredient was analyzed for gross energy, total metabolizable energy (TMEn) and true amino acid digestibility (TAA) in cecectomized roosters.

Results:

- The total metabolizable energy value shows digestibility of about 80%.
- True amino acid digestibility are mostly above 90%.

	Empyreal 75
Gross Energy (as-is kcal/kg)	5,616
TME _n (dry matter kcal/kg)	4,453
True Amino Acid Digestibility (%)	
Alanine	95.3
Arginine	92.2
Aspartic Acid	90.9
Cysteine	86.2
Glutamic Acid	95.7
Histidine	90.0
Isoleucine	93.0
Leucine	96.7
Lysine	81.1
Methionine	94.7
Phenylalanine	95.1
Proline	95.8
Serine	93.5
Threonine	92.5
Tryptophan	92.7
Tyrosine	94.7
Valine	90.8

Obs: Correction factor for nitrogen content = 8.22 kcal/g nitrogen

- $AME = (EI - EO) / FI$
- $TME = AME + (FEL / FI)$
- $TME_n = TME - (8.22 * ANR / FI) - (8.22 * FNL / FI)$

Where:

- **AME** = apparent metabolizable energy
- **EI** = gross energy intake
- **EO** = gross energy voided of the feedstuff (excreted)
- **FI** = feed intake
- **TME** = true metabolizable energy
- **FEL** = fasting energy loss
- **TME_n** = true metabolizable energy corrected for the nitrogen content
- **ANR** = apparent nitrogen retained
- **FNL** = fasting nitrogen loss

Conclusions:

- The total metabolizable energy value for Emphyreal 75, about 80%, is commonly seen in protein ingredients with extremely low fat and carbohydrates in cecectomized roosters.
- Numbers above 90% for true amino acid digestibility in roosters are excellent.
- Emphyreal 75 is recognized as an outstanding, highly concentrated protein source for livestock feed, pet food and aquaculture feed.

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