

AP301 for Aquaculture

AP301 is a highly digestible protein ingredient containing 92% crude protein for use in feed for multiple aquaculture species. AP301 is **spray-dried animal blood cells** derived from hygienically collected porcine or bovine blood. Spray-drying is a rapid drying process that maintains protein quality resulting in high digestibility compared to other rendering processes that exposes the protein to high temperatures for a longer duration, resulting in damage to the protein.

Apparent digestibility of various animal protein sources by Rainbow Trout

Protein Source	Sources, N	Apparent Digestibility, %		
		Dry Matter	Protein	Energy (GE)
Spray-dried animal blood cells	1	92.0	96.0	93.0
Spray-dried animal whole blood	2	93.0	96.5	93.0
Spray-dried animal plasma	1	99.0	99.0	99.0
Rendered animal blood meals	4	83.8	84.8	83.8
Rendered poultry by-product meals	2	76.5	89.0	82.0
Rendered meat and bone meals	6	68.5	87.0	77.3
Hydrolyzed feather meals	4	81.3	82.5	78.5

Adapted from Bureau et al., 1999, Aquaculture 180:345-358.

Other research has confirmed that AP301 results in very high apparent digestibility (< 95%) of dry matter, protein and energy by Rainbow Trout compared to feather meal or poultry by-product meal (Serwata et al., 2002 World Aqua Society) and by Atlantic Salmon (Cho et al., 1997, University of Guelph). Using spray dried blood cells in combination with feather meal or poultry by-product meal improved apparent dry matter, protein and energy digestibility compared to using the rendered proteins alone in diets for Rainbow Trout (Serwata et al., 2002 World Aqua Society).

Juvenile rainbow trout fed a diet with 8.75% AP301 replacing herring meal for 12 weeks had similar growth rate and better uniformity in final body weight than trout fed a diet with herring meal (Summerfelt, Iowa State University).

Other research in the Philippines demonstrated that 8% AP301 in diets for tilapia for 54 days improved body weight gain by 52% and feed efficiency by 45%. In South China shrimp fed diets with 5% AP301 had 57% heavier final weight than shrimp fed a control diet.

AP301 is an excellent highly digestible animal protein source for use in aquaculture feed to reduce reliance on fish meal and provides formulation advantages due to its high protein content (92%). AP301 is typically used at 5 to 10% of the formulation for fish and 3 to 5% for shrimp.

Bottom line:

AP301 increases diet digestibility, body weight gain and feed efficiency.