

THE HIGH-QUALITY PROTEIN PERFECTED FOR AQUACULTURE DIETS.

HIGH-QUALITY PROTEIN FROM A YEAST SOURCE.

PROPLEX[®] DY is a high-quality yeast (*Saccharomyces cerevisiae*), a source of palatable crude protein, supplying highly digestible amino acids with an excellent amino acid profile. It's a suitable alternative to fishmeal and contains no animal proteins. Research has demonstrated the utility in aquaculture species including trout, salmon and shrimp. Incorporating ADM's PROPLEX DY provides ration flexibility and comes with no known anti-nutritional factors.

CONSISTENT QUALITY HELPS ENSURE PERFORMANCE.

Variability in ingredient quality and nutritional composition hurts performance. Not so with PROPLEX DY. It's produced at a single USA-based facility with control over all phases of production, thus, reducing product variation. The use of wet milling technology removes fiber and corn pigments, resulting in a lower risk of mycotoxins. Plus, it's the sustainable alternative to fishmeal and contains no animal proteins.

THE RELIABLE AND AFFORDABLE PROTEIN ALTERNATIVE.

PROPLEX DY is a good source of crude protein (Typical CP=48%), an ideal alternative to higher priced protein sources and offers positive production economics without compromising growth. The flexibility of PROPLEX DY means that targeted levels of critical amino acids can still be attained while complementing other protein sources. And, because it's manufactured using ADM technology, you can rest assured it meets your strictest of standards.

Visit ADMAnimalNutrition.com/aqua or contact us at 800-236-2460 or AnimalNutrition@ADM.com

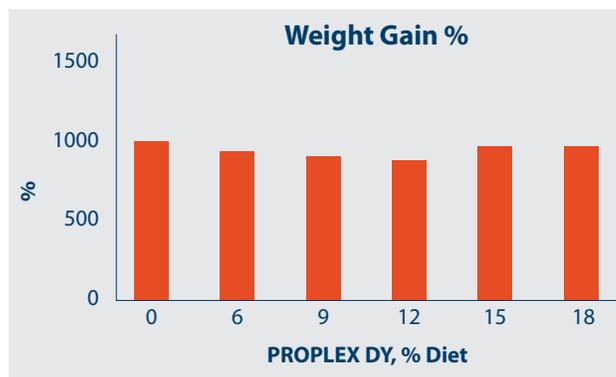


TROUT

STUDY | Rainbow trout (30 fish/tank) were fed PROPLEX DY as a replacement for poultry byproduct and wheat flour in a 9-week experiment.

FINDINGS | PROPLEX DY included up to 18% in trout diets to support performance

Sealey et al., 2015. Refining inclusion levels of grain distillers dried yeast in commercial-type and plant-based diets for juvenile rainbow trout, *Oncorhynchus mykiss*. *Journal of the World Aquaculture Society*. 46:4

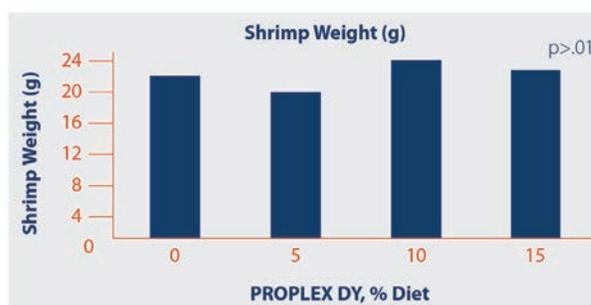


SHRIMP

STUDY | Shrimp were fed PROPLEX DY as a replacement for soybean meal for 16 weeks.

FINDINGS | Shrimp demonstrate robust growth when PROPLEX DY is included up to 15%

Achupallas et al., 2016. Pond production of Pacific white shrimp, *Litopenaeus vannamei*, fed grain distillers dried yeast *Aquaculture Nutrition*. 22:1222



SALMON

STUDY | PROPLEX DY was tested in salmon diets as a replacement for poultry meal and sardine meal for 4 months.

FINDINGS | Salmon perform very well when PROPLEX DY is included up to 15% of the diet.

Burr, G.S., W.R. Wolters and F. T. Barrows. 2017. Growth performance of Atlantic salmon smolts (*Salmo salar*) fed diets containing a yeast protein product. *Aquaculture America* 2017. San Antonio TX.

Diet	Avg Day 120 weight (g)	FCR (g fed/g gain)	Weight Gain (g)	SGR (%/day)
0%	395.10	0.96	237.46	0.98
5%	426.35	0.89	292.14	0.97
10%	446.22	1.10	285.15	1.08
15%	426.61	0.85	287.79	0.93
P Value	0.54	0.56	0.54	0.63

PUBLICATIONS

Achupallas, J., Y. Zhou, D. Davis. 2016. Pond production of Pacific white shrimp, *Litopenaeus vannamei*, fed grain distillers dried yeast. *Aquaculture Nutrition*, 22:1222 · Gause and Trushenski, 2011. Production performance and stress tolerance of sunshine bass raised on reduced fish meal feeds containing ethanol yeast. *North American Journal of Aquaculture*. 73:168 · Gause and Trushenski, 2011. Replacement of fish meal with ethanol yeast in the diets of sunshine bass. *North American Journal of Aquaculture*. 73(2):97 · Gause and Trushenski, 2013. Comparative value of fish meal alternatives as protein sources in feeds for Hybrid Striped Bass. *Aquaculture*. 75(3):329 · Hauptmann, B., F. Barrows, S. Block, T. Gaylord, J. Paterson, S. Rawles, W. Sealey, 2014. Evaluation of grain distillers dried yeast as a fish meal substitute in practical-type diets of juvenile rainbow trout, *Oncorhynchus mykiss*. *Aquaculture*. 432:7 · Hauptmann B., F. Barrows, S. Block, T. Gaylord, J. Paterson, W. Sealey, 2014. Potential for a mycotoxin deactivator to improve growth and performance of rainbow trout fed high levels of an ethanol industry co-product, grain distillers dried yeast. *North American Journal of Aquaculture*. 76(4):297 · Kanczuzewski and Trushenski, 2015. Evaluation of hydrogenated soybean oil in feeds for hybrid striped bass fed in conjunction with finishing periods of different durations. *North American Journal of Aquaculture* 77:8 · Omolola, B., C. Yeoman, T. Gaylord, G. Duff, T. Hamerly, B. Bothner, S. Block, W. Sealey, 2017. Differences in amino acid catabolism by gut microbes with/without prebiotics inclusion in GDDY-based diet affect feed utilization in rainbow trout. *Aquaculture*. In press. · Rosales, M., S. Castillo, C. Pohlenz, D. Gatlin, 2017. Evaluation of dried yeast and threonine fermentation biomass as partial fish meal replacements in the diet of red drum *Sciaenops ocellatus*. *Animal Feed Science and Technology*, 232:190 · Sealey, W., T. O'Neill, J. Peach, T. G. Gaylord, F. Barrows, S. Block, 2015. Refining Inclusion Levels of Grain Distiller's Dried Yeast in Commercial-type and Plant-based Diets for Juvenile Rainbow Trout, *Oncorhynchus mykiss*. *Journal of the World Aquaculture Society*. 46(4):434



The Future of Aquaculture Nutrition