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High soy shrimp feeds for the pacific white shrimp *Litopenaeus vannamei*
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Presently the Pacific white shrimp, *Litopenaeus vannamei* dominated commercial shrimp production. It could be suggested that, from a nutritional standpoint, one of the reasons for the popularity of the Pacific white shrimp is the adaptability to a range of diets, tolerance of plant based feed ingredients and ability to utilize natural productivity. This species is very tolerant of alternative feed formulations and diets with low levels of marine proteins. We have run a number of trials demonstrating the potential of soy based feeds under pond production demonstrating the efficacy over a number of years, stocking densities and production systems. Albeit, they are tolerant of high soy feeds this does not mean the performance is optimized. Both processing and soy variety can influence the quality of the meal and warrant research and development. This overview of our research will summarize work we have accomplished with respect to low fishmeal or plant based/high soy feed formulations including the evaluation of new soy varieties, the assessment of SBM produced from alternative processing methods, as well as the use of enzymes to improve digestibility.

Table 1 : Pond production trials of *Litopenaeus vannamei* fed experimental diets containing high levels soybean meal cultured in 0.1-ha ponds at Claude Petet Mariculture Center in Gulf Shores, Alabama, USA.

Treatment	% inclusion SBM	FBW (g)	Yield (kg/ha)	FCR	Survival (%)	Reference
9% FM	32.48	19.6	5847	1.24	87.2	Amaya et al. 2007
6% FM	34.82	18.4	5363	1.38	84.0	
3% FM	37.17	19.8	6548	1.12	94.0	
0% FM	39.52	20.7	6347	1.14	87.4	
10% PBM	55.12	16.0	5187	1.33	93.7	Sookying and Davis 2011
10% FM	53.71	16.9	5054	1.35	86.6	
10% DDGS	58.01	16.3	5265	1.32	92.2	
10% PM	58.00	16.2	5194	1.37	88.6	
17shrimp/m ²	53.24	25.3	2660	1.17	61.5	Sookying et al. 2011
26shrimp/m ²	53.24	20.7	3052	1.50	58.0	
35shrimp/m ²	53.24	22.0	4612	1.54	59.5	
45shrimp/m ²	53.24	21.9	6149	1.35	65.1	
0% SPC	58.01	13.5	4190	1.54	86.7	Sookying and Davis 2012
4% SPC	52.01	15.7	5051	1.28	89.5	
8% SPC	46.01	13.5	4508	1.45	92.9	
12% SPC	39.67	13.5	4479	1.44	93.3	

Final body weight (FBW), Fish meal (FM), Poultry by product meal (PBM), Distillers dried grains with solubles (DDGS), Pea meal (PM), Soy protein concentrate (SPC), Grain distillers dried yeast (GDDY).