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Focus on cost efficiency maximizes profits



1 April 2005 Dan Fegan



Consider both cost and performance



Cost-efficient feed use entails consideration of not only appropriate protein levels, but also the protein efficiency ratios of the feed.

There has been a major shift in the thinking of shrimp farmers in Asia over the past five years from a focus on purely technical issues to those driven by the market. Obviously, technical issues such as disease management remain important and are a greater priority in some countries, but many farmers consider diseases a “business risk” that can be managed through greater attention to biosecurity and good management practices.

Reduce costs

In the past few years, discussions among farmers and shrimp industry specialists in many Asian countries have been dominated by market-related topics such as shrimp prices, export markets, competition, trade practices, antidumping, food safety and traceability. The rising prices of farm inputs, raw materials, and feed are further concerns.

Previously, these issues were of minor importance to farmers, since prices were high, margins were good, and there was little need to focus on cost efficiency. With the pressure on prices, however, farmers who have seen their profit margins shrink now continually look to reduce costs.

Maximize profits

Rather than strictly focusing on cost reduction, it is better to focus on cost efficiency with the aim of maximizing profit. Cost reduction can be a component of profit-oriented approaches, but it must be carefully thought through to ensure that it does not sacrifice profitability.

One common error is to focus on the cost of a product without considering performance. In a simple example, buying cheap feed can turn out to be a costly option if the end results are higher feed-conversion ratios and reduced growth, both of which impact the profitability of a farm. Overall feed cost can be less, but the cost of feed per kilogram of shrimp produced is higher. Growth rates can also be impacted and affect the bottom line when shrimp are smaller at harvest or require more time to reach the preferred market size.

Actual costs

Another common mistake is to compare similar products by price per volume without taking into account the percentage of active ingredients or cost of application. Sometimes cheap products contain the same active ingredient as more expensive products, but at a lower concentration. The different concentrations naturally dictate different use rates, so it is important to compute overall application costs that include both material and labor for a desired end result to get a true idea of the potential cost benefit of the “cheaper” product.

Feed costs

Feed is the most expensive input in shrimp production and also the one that has the greatest impact on performance. Consequently, farmers rightly put a great deal of effort into controlling and managing feed costs. Unfortunately, feed millers are faced with raw material costs that continue to rise.

The costs of fishmeal, fish oil, and soybean meal – three of the most important constituents of shrimp feeds – have been rising due to limited global supply and competition for the raw materials from aquaculture and other food-producing industries. Indeed, the cost of protein for animal feeds has been recognized as a major constraint in animal husbandry, and great efforts are being made to identify alternative protein sources and increase the efficiency of existing supplies.

Protein content

Many shrimp producers use the crude protein content of feeds as a means of evaluating feed quality. Feeds with higher crude protein levels are often considered better than those with less protein.

This tends to oversimplify the situation, since it is not just the crude protein level that is important, but the quality and digestibility of the protein and, more importantly, the balance of amino acids in the protein. If the amino acid balance is wrong for the species being cultivated, or the protein digestibility is low, growth rates will suffer, regardless of the crude protein content.

Protein efficiency

In nutrition, there is increasing interest in protein efficiency ratios, the rates at which dietary protein is converted into animal weight. A good protein efficiency ratio (PER) indicates that a high proportion of the protein is converted to body weight.

Another important consequence of the emphasis on high crude protein levels without considering PER is that with low PER, much of the protein will be lost to the aquatic environment. The nitrogen in this lost protein ultimately ends up as ammonia that can cause environmental problems in ponds. Dealing with the problems caused by high ammonia generation can reduce the profitability of pond culture, so it is in farmers' interests to look for better protein utilization, rather than just high protein levels.

(Editor's Note: This article was originally published in the April 2005 print edition of the Global Aquaculture Advocate.)

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