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## Free spreadsheet lets you ask feeding "what ifs"

LARGE milk and feed price fluctuations create anxiety and uncertainties. Profit margin may shrink rapidly when milk price goes down and supplemental feed prices go up. In today's economic climate, it is more important than ever to make sure you make decisions that maximize return on feed expenses. The cost and the milk response to feed supplements especially are important because these are critical economic factors. Supplements, on one side, make more of the feed expenses, which at the same time are the big ticket expense in your dairy, and milk, on the other side, is by far the most important revenue generator.

Traditional diet formulation is based on finding the least-cost ration that provides the lowest level of required nutrients for a desired level of milk production. Typically, traditional diet formulation does not consider changes in milk production due to changes in protein (CP), rumen degradable protein (RDP), and rumen undegradable protein (RUP) that could be fine-tuned to get the most income-over-feed cost.

Consider this situation for a group of Holsteins with an average of 100 days-in-milk and 80 pounds of milk per day. According to the National Research Council equations, these cows should be consuming 53.7 pounds of dry matter intake per day.

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Now, suppose that 50 percent of the dry matter is provided through forage which is composed of equal parts of corn silage and alfalfa silage. Therefore, these cows already are receiving 7.7 percent of crude protein (1.8 percent rumen undegradable protein and 5.9 percent rumen degradable protein) from the forages. If the target protein in diet is 18 percent (6.5 percent rumen undegradable protein and 11.5 percent rumen degradable protein), then the supplements could provide the difference, up to 9.2 percent crude protein (4.8 percent rumen undegradable protein and 5.6 percent rumen degradable protein).

Keep in mind that the supplement sources have different compositions of crude protein, rumen undegradable protein, and rumen degradable protein which not only complete the protein requirements

but also impact milk productivity. Assuming that the proportion of forage in the diet is fixed for the farm, our goal then is to find the combination of supplements that will provide the greatest difference between milk value and feed supplement costs.

We will use an example to illustrate what we have learned in developing and using the Income Over Feed Supplement Cost (IOFSC). (See box below.) Let's suppose that the group of cows described currently receives 20.9 pounds corn and 6.0 pounds soybean meal. Under this diet, each cow in this group would have on average a \$5.20-a-day of income-over-feed supplement cost (IOFSC) using February 2009 feed and milk prices . . . \$9.40 per hundredweight milk, \$3.54 per bushel corn, and \$300 per ton soybean meal.

However, under the same price structure, this IOFSC could be as much as \$5.54 a day if the sources and proportions of supplemental feeds are fine-tuned. This 34 cents additional IOFSC could be realized, for example, if the supplements are 17.6 pounds of corn, 4.2 pounds of soybean meal, and 5 pounds of corn distillers grains (at \$140 per ton). However, this is just an example. The actual combination of supplement will vary substantially, depending on the availability of feed supplements, your own feed costs, and your milk price.

You also should consider fine-tuning total crude protein in the diet. The targets of rumen undegradable protein and rumen degradable protein and, consequently, the target for crude protein in diet is a parameter that could be adjusted further. Knowing the main supplement sources, there still is an opportunity to define a level of crude protein that would improve your return.

In the above example, corn is the main energy supplement, and soybean meal is the main protein supplement. Therefore, you could, for example, substitute corn grain for soybean meal targeting crude protein levels between 16 and 18 percent to find out the level of crude protein that maximizes your margin. In the above example, the IOFSC would reach a plateau at 17.6 percent crude protein level after which no further increment of crude protein content is warranted. Furthermore, if, for example, the soybean meal price would go up 50 percent (\$450 per ton), a diet containing 16.7 percent crude protein would have a better IOFSC (\$4.76) than a diet containing 18 percent crude protein (\$4.69), although milk production would not be as high.

### Run your numbers . . .

Nevertheless, you need to run your own numbers. Every situation is different, and because of that we have created a user-friendly computerized (PC-based) tool that could help you with this task. The IOFSC, along with a fact sheet and instructions, are freely available at the University of Wisconsin Extension Dairy Management website: <http://www.uwex.edu/ces/dairymgt/> under "Management Tools." Click on the title "Income Over Feed Supplement Cost." This Excel spreadsheet tool uses linear programming to maximize the IOFSC for defined parameters of cow productive characteristics, availability of supplements, and economic parameters. After finding the optimal IOFSC, the tool could further assist you to analyze whether a drop in crude protein is justified under your own conditions.

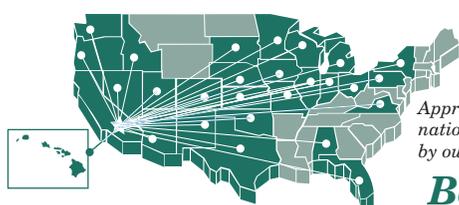


### Where to find the spreadsheet

**Application:** Income Over Feed Supplement Cost (IOFSC®)

**Available at:** <http://www.uwex.edu/ces/dairymgt/tools/index.cfm>  
Income Over Feed Supplement Cost (IOFSC).

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Retail fluid milk	\$2.50/gallon	\$3.75/gallon	+50%
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Average California Producer pay price	\$12.10/cwt.	\$11.00/cwt. (EST)	-10%

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Why dairymen should have a coordinated marketing plan:*

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\*Per Genske, Mulder & Co., LLP survey and sales of dairy products, "Loss Leaders" excluded.

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