

Large Production Increases Possible With Somatotropin

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Short term studies have shown "responses at all stages of the lactation cycle and actually responses that were fairly consistent on a quantity basis," Chalupa reported. And although the studies have shown an increase in fat and protein yield, milk composition was not affected. Any increase in milk and fat, Chalupa explained, is largely the result of the increase in milk volume.

The extra energy needed to produce this milk comes from calories in additional food consumed and from calories that normally would have gone to adipose body tissues, Chalupa said.

Long term studies have shown that feed intake in cows injected with somatotropin increases within one to three weeks. And, he continued, cows treated with product "have a higher peak of production and stay at that level of

production for a longer period."

In addition to eating more feed, treated cows will use feed more efficiently. "Even though the animals are eating more, the transfer of dietary nutrients to milk is greater," he said.

Two reasons for the increased efficiency are that the animals are producing more milk more; therefore, maintenance requirements are diluted. Secondly, some nutrients that normally go to body tissues, are transferred to milk production.

The percentages of fat and protein in milk do not appear to be affected when energy and protein balances are positive; however, when energy balances are negative, the studies usually showed an increase in milk fat. Chalupa said the fat increase is the result of long chain fatty acids being mobilized from body tissue and extracted to synthesize milk

fat.

And, if the protein is in negative balance, Chalupa said, the protein percentage in the milk usually drops. The lactose content remains constant.

With the increase in production, making sure the cows are getting the proper nutrients becomes a challenge, Chalupa said. In general, cows in the studies were close to being in a positive protein balance. By increasing feed intake, cows have the extra nutrients, including protein, they need for production.

In the University of Pennsylvania study, cows were fed a good, but not exceptional diet, Chalupa reported. The feed had 1.72 megacalories per kilo, with 16.4 percent protein. Of the total

protein, 61 percent was rumen bypass protein.

A diet for cows on somatotropin will need to contain higher levels of protein just like a diet for a high producing cow. However, it will be important to pay close attention to the ratio between rumen degradable and nondegradable protein.

Chalupa suggested two methods of achieving the high energy diet a cow treated with somatotropin will need. One way, he said, is to increase grain at the expense of forage. But, he said, buffers, such as bicarbonate, should be added to counteract the undesirable effects of an altered acid-base balance in the animal

Another option is to supplement the rumen with a type of by-pass fat to increase the caloric density of the diet without having to compromise fiber.

But, Chalupa cautioned, "In order to realize a 20 to 25 percent improvement in feed efficiency and milk production with bovine somatotropin, there are going to also have to be advances in disease control, pest control, animal nutrition, the environment that the animal is in, management, communication and information. We're going to have to have all of these advances to realize the advantages that are potentially possible with somatotropin," he concluded.

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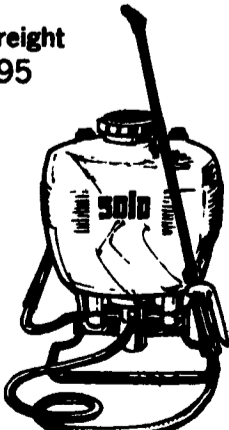
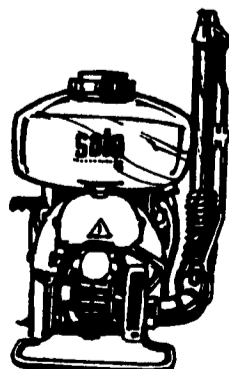
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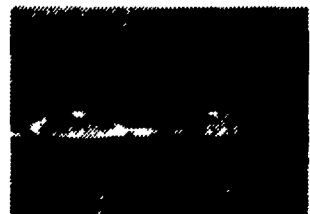
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