Effects Of Dairy Manure Application To Alfalfa Studied

As a dairy herd size increases, dairy manure production also increases. Dairy manure can be utilized as a valuable plant fertilizer as well as a source of organic matter if properly used within a dairy farm operation.

The objective of a recent study was to determine the effects of dairy manure application rates to an established stand of alfalfa on herbage yield, forage, soil nitrate nitrogen, and phosphorus in the Upper Peninsula of Michigan.

In real farm situations, since there is a limit to manure storage during the winter period, it's necessary to apply manure before entering the winter. Manure pits also need to be emptied in the early spring to store manure during the season.

Liquid manure having about 60 percent dry matter content was surface-applied using a liquid manure spreader to the alfalfa field at the rates of 0, 6,000, 12,000, and 18,000 gallons per acre per year, equally split in late spring before green-up and early winter. Alfalfa was cut three times per year and samples were taken to measure dry matter content and nutritive values. Soil samples were taken in the fall after the last cutting.

Although herbage yield showed increasing trends as manure application rates increased, herbage yield in the end was not affected by manure application rates. This indicates that applying liquid dairy manure to alfalfa up to 18;000 gal./acre/yr. equally split was not detrimental to maintaining herbage yield of alfalfa.

In general, dairy manure application to alfalfa did not make a significant difference in crude protein, acid detergent fiber and neutral detergent fiber over the control treatment. Crude protein content increased by applying dairy manure as compared to the control treatment at the first cut. Forage quality, however, was decreased in subsequent cuttings.

There was no significant difference in soil nitrate nitrogen within manure treatments, indicating that split applications of dairy manure up to 18,000 gal./acre/yr. did not increase soil nitrate nitrogen in 2001. Like soil nitrate nitrogen, soil phosphorus was not affected by manure application rates.

Based on one year's data, applying liquid dairy manure up to 18,000 gal./acre/yr. did not show detrimental effects on herbage yield, forage quality and soil nitrate nitrogen, and phosphorus.

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