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EC173 Alfalfa and Sweetclover Silage

D. L. Gross

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ALFALFA AND SWEETCLOVER SILAGE

D. L. Gross, Extension Agronomist

Alfalfa and sweetclover are of special value as a livestock feed because of their protein and vitamin A content. When these crops are made into hay they often lose much of their value due to unfavorable curing conditions, and the loss of leaves which contain 75 per cent or more of the protein and vitamin A. Second year sweetclover used as hay often causes a bleeding disease in cattle unless handled very carefully to prevent spoilage. When used as silage this danger is apparently eliminated.

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When sweetclover or alfalfa is made into silage there is less loss of feed constituents than occurs with any other practical method of handling. Legume silage is highly palatable, but should not be fed as the sole ration. Animals crave dry feed of some kind when fed these silages. Prairie hay, sorghum hay or fodder or even oats straw seem to satisfy this need, if available at all times.

Sweetclover silage is ready for ensiling at the early bud stage. Alfalfa may be ensiled from the early bud to the full bloom stage. The more mature stage is preferred. When alfalfa is ensiled at the less mature stage, it is advisable to permit it to dry slightly after mowing and before ensiling. Otherwise there will be leakage of water from the silo, which will carry away part of the feed nutrients. Such wet silage is usually ill-smelling and low in palatability. On the other hand, if the alfalfa is permitted to lose too much of its water in field curing, it will not pack well and molding may occur in the silo.

The addition of some carbohydrate material to legume silage at the time of ensiling is usually advisable. This tends to promote a desirable type of fermentation and to absorb some of the excess moisture. Cracked, shelled or crushed ear corn is most commonly used for this purpose, being used at the rate of about 200 pounds for each ton of green material. Chopped sorghum fodder is also used for this purpose. The quantity of this material used should be limited to the extent that the combined material is not too dry for thorough packing.

When one has had the necessary experience, good alfalfa and sweetclover silage can be made without the addition of a preservative. This requires that the green ensilage material have a moisture content of about 65 to 68 per cent when ensiled. The problem is to determine when the ensilage material

has reached this stage of dryness, and to get all of the crop into the silo before it has dried beyond this point. The difficulty in meeting these requirements is the principal reason for the general recommendation of the preservative material.

When the silage material is ensiled at a moisture content of less than 65 per cent it may not pack well, and in this case molding and heating will occur. Green ensilage material is said to contain sufficient moisture if it tends to cling together when a quantity of it is pressed together between the hands into the shape of a ball.

In order to acquire the "feel" of 65 to 68 per cent moisture material, one might follow this procedure:

Place ten pounds of newly-mowed alfalfa on a large piece of burlap. Spread this as thinly as possible in order to hasten drying. If this alfalfa was cut in the morning, and if it came from a field with an abundance of soil moisture, it likely contained about 80 per cent moisture when cut. If this same alfalfa is cut in the afternoon of a warm, windy day it may contain about 75 per cent. Alfalfa in full bloom, growing on dry soil, and harvested in warm, dry weather, may contain as little as 70 per cent moisture.

With these considerations in mind, the following calculations will assist in determining when the alfalfa has reached about 60 per cent moisture.

Ten pounds of alfalfa containing 80 per cent moisture when cut, will weigh about 5.7 pounds when it has dried to 65 per cent water.

Ten pounds of alfalfa containing 75 per cent water when cut, will weigh about 7.1 pounds when it has dried to 65 per cent moisture.

Ten pounds of alfalfa containing 70 per cent moisture when cut, will weigh about 8.6 pounds when it has dried to 65 per cent moisture.

In planning the job of making ensilage, it is important to keep in mind that alfalfa or sweet-clover cut in very warm, windy weather and left in the swath may dry to 65 per cent moisture in as little as one to three hours. It will dry more slowly if placed in the windrow immediately after mowing.

The following will assist in determining the approximate tonnage of alfalfa at different moisture contents.

Alfalfa or sweetclover that yields one ton (2000 pounds) of 25 per cent moisture hay per acre, represents approximately:

4300 pounds of alfalfa containing	65%	moisture
5000 pounds of alfalfa containing	70%	moisture
6000 pounds of alfalfa containing	75%	moisture
7500 pounds of alfalfa containing	80%	moisture

Legume and grass silage usually has a greater weight per cubic foot than corn or sorghum silage. For this reason, it is important that upright silos be well reinforced before filling with legume silage. The drier and coarser the material, the less the weight per cubic foot. The greater the depth and diameter of the silo, the greater the weight per given volume. Good corn silage may weigh from about 17 pounds per cubic foot at a depth of 2 feet to over 60 pounds per cubic foot at a depth of 36 feet. Alfalfa and sweetclover silage may be expected to have a greater weight per cubic foot than this if ensiled at a moisture content in excess of 65 per cent.