K-STATE Kansas State University Research and Extension

FORAGE FACTS

Publication Series

SUNFLOWER SILAGE

INTRODUCTION

Although sunflowers are generally planted for seed production, they can be used as a forage source by livestock producers. Seeds represent about one-third of the sunflower plant's dry matter, therefore, large amounts of potential livestock forage is not utilized when only the seed is harvested. Stressed sunflowers with a low level of production can be profitable if utilized as a forage source for livestock. When sunflowers are grown as a second crop following small grains, sunflower silage or grazing may be the only alternative when seeds do not have sufficient time to mature.

SUNFLOWER TYPES

Two primary kinds of sunflowers are grown in Kansas—oil and confectionery (non-oil or edible). Oil sunflowers have a shiny black color and are more common in Kansas than confectionery sunflowers. The small oil sunflower seeds are used to produce a high-quality cooking oil and sunflower meal for livestock feed. Confectionery sunflowers have larger seeds than oil sunflowers and are black with white stripes. They are grown to produce food products for baking, direct seed eating and birdseed.

NUTRITIONAL VALUE

Research conducted prior to 1930 indicated a feeding value for sunflower silage of 80 percent of corn silage, but today's improved varieties have improved that to 90 to 95 percent of corn silage.

Whole-plant sunflower silage usually contains slightly more crude protein and considerably more fat on a dry matter basis than corn silage. Sunflower silage contains 10 to 12 percent crude protein compared to 8 to 9 percent commonly found in corn silage. In addition to a higher crude protein content, sunflower silage made from oil seed varieties contains 10 to 12 percent fat compared to 2 to 3 percent fat in corn silage. Silage made from non-oil seed sunflowers or low yielding crops usually contain only slightly more fat than corn silage.

The disadvantage of sunflower silage is the fibrous stalk that causes a high fiber content which can be two to three times as much as corn silage. The increased fiber content of sunflowers is caused by high levels of lignin, which is the undigestible portion of the plant. Because the increased fiber content of sunflower silage is offset somewhat by the higher oil content, the total digestible nutrients (TDN) of sunflower silage is only slightly lower than corn silage.

Intake of sunflower silage may be a problem when it is the only forage fed because the high fat content can reduce consumption. The high rate of fiber content in sunflower silage may also reduce intake by slowing down the rate of passage. These problems can be managed by limiting sunflower silage to one-half or less of the total forage in the ration.

ENSILABILITY OF SUNFLOWERS

One of the main limitations of sunflowers for silage is the low dry matter content at the time of harvest. Sunflower stalks hold high amounts of water which makes it difficult to achieve the proper dry matter content for ensiling. The ideal dry matter content for ensiling sunflowers is between 30 and 40 percent. The brown, dried appearance of the leaves can mislead producers about the dry matter content of the whole plant. Even when the seed is mature, the whole-plant dry matter content of the sunflower can still be 20 per-

cent, which is too wet for ensiling. South Dakota researchers reported a 30 percent dry matter content in mature sunflowers two weeks after a killing frost. Low dry matter silages (less than 30 percent dry matter) can cause an undesirable fermentation and excessive effluent seepage from the silo.

OTHER PUBLICATIONS

Improving Silage Quality (Forage Fact Sheet Series)

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