

# Farm Structures FACTSHEET



BRITISH  
COLUMBIA

Ministry of Agriculture and Food

Order No. 372.300-2

Agdex: 720

## SILAGE - MAKE IT RIGHT !

### INTRODUCTION

Silage offers the possibility of consistently putting up a high quality feed with a minimum of harvesting losses and in less than ideal weather. Dissatisfaction with silage and poor quality silage often result from poor planning, inadequate equipment or silos and improper harvesting methods. It is possible to overcome these difficulties through good planning and an honest effort to learn and follow the proper techniques of making silage. If you are not willing to follow the correct procedure, don't attempt to harvest your crop as silage!

#### For making high quality silage three requirements must be met:

1. **Start with a high quality forage crop.**
2. **Ensilage the forage at the correct moisture content.**
3. **Exclude the air from the forage as quickly as possible and keep it out.**

(The type of silo determines the amount of management required to exclude and keep the air out, **not** the quality of the silage. Under good management conditions, no practical difference in nutritive feed value can be attributed directly to the type of silo used.)

### PROCEDURE FOR MAKING SILAGE

#### The basic rules of silage making are as follows:

1. **Put together an efficient harvesting system.**

Good silage must be put up quickly. Proper sizing and matching of equipment is essential to eliminate wasted time and bottlenecks. The lowest capacity unit determines the rate of harvesting of the whole system. Ensure that the tractor you use has enough power to run your harvester and if necessary pull a wagon. Sufficient hauling equipment and adequate silo filling

equipment should be obtained to keep the forage harvester working to full capacity in the field.

2. **Harvest at the optimum stage of maturity.**

One of the main advantages of harvesting silage is that timely harvest is usually possible. The stage of plant growth at harvest affects the amounts of digestible protein and energy.

#### Recommended stages of harvest in BC are:

- ♦ Legumes and grass legume mixtures, when legumes reach the 10% bloom stage.
- ♦ Cereal crops (barley, oats and wheat) at the soft to hard dough stage.
- ♦ Field corn, when the average plant moisture content comes down to 70%.

3. **Harvest at the correct moisture content.**

If forage is harvested at moisture contents above 70%, storage losses from seepage and improper fermentation will result. High moisture levels may also result in freezing in winter and an inability for cattle to eat enough dry matter for maximum production.

Try to harvest at moisture levels above 50% (except where lower moisture levels are recommended for oxygen limiting silos) to reduce field losses from weathering and handling. Too low a moisture content may also result in over-heating due to the difficulty of packing the forage tightly to exclude the air. Drying forage below 65% moisture does **not** increase its nutritive feed value.

#### The recommended moisture contents for harvest are:

- Grass or legume silage, 55% to 70%. If these crops are cut at the proper stage of maturity, some wilting will be necessary before harvesting.

- Cereal silage at the soft to hard dough stage should not require wilting. The moisture content should be between 55% and 65%.
- Corn silage should be harvested at 62% to 70% moisture with the best being between 65% and 68%.

Getting the right moisture content is extremely important. Without years of experience, a reliable moisture meter is an indispensable piece of equipment for the silage maker.

#### 4. **Cut the forage into short, uniform pieces.**

An average length of about ½ inch is desirable. This requires that the harvester be set a theoretical cut of about ¼ inch. If the moisture content goes below 55%, or if the crop is over mature, a shorter cut should be used. Since long pieces make good packing difficult, not more than 10% of the forage should be in pieces over 1 ½ inches long.

To get the desired type of cut, the knives must be kept sharp at all times, the shear bar must be properly adjusted and the windrow should have all the stems placed parallel to the direction of travel.

#### 5. **Operate equipment carefully and efficiently to minimize harvesting losses.**

Use covers on all wagons and trucks to eliminate wind losses. Employ competent operators to maintain high field efficiencies. Harvesting losses can be kept to less than 1% in a good operation.

#### 6. **Fill silos as quickly as possible.**

By preventing excessive exposure to the air, rapid filling and even distribution help to set up the proper conditions for proper fermentation. Even distribution in tower silos is necessary for structural stability. If filling is interrupted for more than 2 days, the silo should be sealed with a plastic cover.

#### 7. **Place silage in a properly constructed silo.**

Silo walls should be as air tight as possible. Horizontal silo floors should be sloped for adequate drainage for rain and melting snow. The walls should be sloped to

allow good tractor packing and to maintain a good air seal. Tower silos must be built, maintained and managed properly to keep the air out.

#### 8. **Pack the silage adequately.**

Packing is necessary not only to get the air out, but more important, to keep it out.

Continuous packing during filling is recommended for horizontal silos. A wheel tractor exerts higher pressure than a crawler, and is therefore preferred. Tractor packing requires a high degree of operator skill. Extreme care must be taken when operating vehicles on top of silage to prevent over-turning off the sides or ends. Anti-roll bars are strongly recommended for tractors used for packing.

Rapid filling is the best method to ensure adequate packing in a tower silo.

#### 9. **Seal the silo to prevent re-entry of air.**

A plastic cover is the common type of seal used. To be completely effective, the plastic sheet should be kept in contact with the silage over the entire area. An even layer of chopped straw, sawdust, dirt, straw bales and other materials have been used successfully. A carefully placed and maintained seal can practically eliminate surface spoilage.

#### 10. **Check the silage temperature after it is placed in the silo.**

High temperatures developing after 1 to 4 days are evidence of improper ensiling procedures. With ideal conditions of harvest and storage, the temperature should not rise above 40°C (100°F.) At temperatures above 50°C (120°F) feed losses occur.

The most frequent causes of over-heating are:

- too low a moisture content
- over-mature forage
- too long a forage cut
- insufficient or slow packing

---

## SUMMARY

Silage offers you an excellent method of storing most forage crops. Because feed is one of the most significant cost items in livestock production, anything that influences the amount and quality of that feed affects the success of the operation. Know these rules and why they are important!

---

### FOR FURTHER INFORMATION, CONTACT:

Bert van Daltsen, Mechanization Engineer  
 Phone: (604) 556-3109  
 Email: Bert.vanDaltsen@gems4.gov.bc.ca

### RESOURCE MANAGEMENT BRANCH

Ministry of Agriculture and Food  
 1767 Angus Campbell Road  
 Abbotsford, BC CANADA V3G 2M3