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COSTS OF STORING AND HARVESTING SILAGE

The annual cost of storing a ton of silage in an unlined trench silo is lower than that for either a concrete-lined trench silo or an upright silo, according to a study made in 1953 by A. C. Magee, Associate Professor of Agricultural Economics at Texas A. & M. College.

The study of different types of silos on 85 farms in the Blackland and Grand Prairie areas of Texas indicates that each type of storage has advantages and disadvantages as compared with the others.

The unlined trench silos had lower initial construction costs than the other types of silos studied. A relatively small crew is needed to put silage in a trench silo. Cutting, hauling, and unloading are done mechanically, and the silage is packed economically and effectively by running the farm tractor over the chopped silage. When feed is taken from the silo, labor also is saved by using tractor-mounted equipment to load the feed into trucks or trailers.

Although there was no difference in the estimated amount of silage spoilage in lined and unlined trench silos, spoilage was twice as great in trench silos as in upright silos. This is primarily because a larger area of silage was exposed to the weather in trench silos than in upright silos.

It is difficult to get equipment in and out of an unlined trench silo during wet weather because the floor of the silo becomes extremely muddy. The fact that a trench silo should be located on a well-drained site is a disadvantage, in that the silo may have to be located where it is not convenient for feeding. In the areas included in this study, the useful life of the unlined trench silo was relatively short because the sides caved in.

The higher costs of initial construction, depreciation, and interest on investment are the only disadvantages of lined trench silos as compared with unlined trench silos. In addition to having the advantages of an unlined trench silo, a lined trench silo is relatively permanent. The muddiness of the floor during wet weather is eliminated; also, the silo can be used as a self-feeder because of the smooth, hard-surfaced floor.

A major disadvantage of upright silos is their high initial cost, particularly for those having small storage capacities. In addition, upright silos need special equipment for filling. More labor is required in harvesting and putting silage in upright silos than for storing silage in trench silos. In the Texas A. & M. study, farmers with upright silos and feed yielding 11 tons per acre required 10.4 man-hours of labor, or approximately 1 man-hour per ton, to put up the silage.

CONSTRUCTION COSTS PER TON OF CAPACITY FOR THREE TYPES OF SILOS, BY SIZE

Type of silo	CAPACITY 100 tons	150 tons	200 tons
Unlined trench	$ .90	$ .73	$ .61
Lined trench	7.60	7.40	7.33
Concrete stave upright	14.05	12.65	10.20

Only 6.4 man-hours of labor were required to put 12 tons of silage in a trench silo, or .5 hour per ton.

There is usually less spoilage in an upright silo than in a trench silo, if the silage is properly packed and cared for. In addition, an upright silo is an attractive and permanent structure which uses little space and generally can be located conveniently close to feed lots and barns. Bad weather affects upright silos less than trench silos, especially those which are unlined.

The study reveals that, for each type of silo, the initial construction costs per ton of capacity decreased as the capacity increased. For the trench silos, savings in cost were small as the capacity increased, but for the upright silos, differences in initial construction costs per ton of silage stored were more substantial.

Regardless of the type of silo used, a field cutter and two trucks or two or three specially built trailers are needed to harvest silage crops. For filling upright silos, a blower equipped with a conveyor also is necessary; the list of equipment needed is completed with two to four farm tractors.

About a third of the farmers whose silage operations were studied owned field cutters; those without field harvesting equipment contracted their cutting. There was a wide variation in custom rates charged from one community to another, ranging from $4 to $10 per acre or $5 to $7.50 per hour. These custom rates included a tractor to pull the cutter and a man to operate each machine.

Of the special equipment needed in silage making, the field cutter was the most expensive to buy and operate. Although there was considerable variation in the purchase prices of harvesters, the highest price paid was $2,500. On the farms studied, harvesters were expected to last an average of 8 years and to cut an average of 180 acres annually. New blowers for use with upright silos cost from $650 to $700 and were expected to

SUMMARY OF THE ANNUAL COSTS OF OPERATING SILAGE FIELD CUTTERS, 1953-54

Item	Per farm
Number of farms studied	18
Cost of cutter, new	$2,197
Estimated life — years	8
Acres cut per year	180
Hours worked per year	190
	Value
Fuel (auxiliary engine):	
Gasoline — 456 gallons	$104.88
Oil — 9 gallons	10.80
Other costs:	
Repairs (cutter and auxiliary engine)	103.00
Depreciation	274.62
Interest	54.62
Total all costs (cutter and engine)	547.92
Cost per acre cut	3.04
Cost per acre, tractor use	.98[1]
Cost per acre, tractor driver	.63
Total per acre costs, field harvesting	4.65

[1]Data furnished by Willie L. Ulich, agricultural engineer, Texas Agricultural Extension Service.

SUMMARY OF ANNUAL COST OF STORING SILAGE IN THREE TYPES OF SILOS, 1953[1]

(200-ton capacity)

Item	TYPE OF SILO		
	Unlined trench	Lined trench	Concrete stave upright
Initial cost	$122.00	$1,466.42	$2,039.75
Estimated years of life	5[2]	20	20
Estimated spoilage, percent	8	8	4
Estimated spoilage, tons	16	16	8
Annual costs:			
Depreciation	$ 18.10	$ 73.32	$ 101.99
Interest on investment	3.05	36.66	50.99
Spoilage at $10 per ton	160.00	160.00	80.00
Materials and labor upkeep	5.00	4.00	25.00
Total annual cost	$186.15	$ 273.98	$ 257.98
Annual cost per ton of capacity	$ .93	$ 1.37	$ 1.29

[1]Estimated costs in 1954 would be approximately the same.
[2]Applies to trench only. Life of fence estimated at 20 years.

last about 10 years. Estimated repairs on a blower, including conveyor and pipes, averaged approximately $10 annually.

Less than half of the farmers with upright silos owned blowers; the other farmers usually rented such machines at a customary charge of 25 cents per ton of silage. Some farmers who filled upright silos had trailers with movable front-end gates which they used to push the load out the back. A kit containing the items needed to equip a trailer for this purpose cost from $65 to $75. The farmers reported that this equipment would last about 8 years, with annual repairs amounting to $4 or $5.

Let Ranges Recover

Rest following a rain is the best prescription for drought-stricken and overgrazed pastures, reports A. H. Walker, Extension range specialist of Texas A. & M. College. Deferred grazing promotes seed and plant reproduction and increases vigor of existing forage.

Since many ranchers have reduced numbers of livestock, they should be able to defer grazing on one-fourth of their pastures without damaging the remainder. Mr. Walker recommends that, if possible, grazing be deferred for 3 to 6 months, or until frost. If pasturage is needed sooner, wait until the grass matures and produces a seed crop.

Pastures with the most native grasses and vegetative cover will make the best recovery in the shortest length of time and should be deferred first. During the growing season, better results will be obtained by removing all livestock from the pasture. Pastures can be grazed moderately during the winter, as this practice will help distribute plant seed, as well as provide some forage for livestock.

Keep Eggs Cool and Clean

High temperatures and low humidity are two of the greatest enemies of good egg quality. A drop in quality means lower prices for producers who are selling on grade, and if a consumer gets poor-quality eggs, he may decide to eat fewer of them.

Grade AA eggs become inedible in 3 days at 98 degrees, but they usually will remain Grade A for about 6 months if the temperature is held just above freezing.

F. Z. Beanblossom, Extension poultry marketing specialist at Texas A. & M. College, gives the following pointers on maintaining quality and cleanliness of eggs.

- Use clean, dry nesting materials and keep the hens confined on wet days to avoid mud-tracked nests.
- Gather eggs daily, preferably two or three times a day.
- Gather eggs in a wire basket, which permits air to circulate around the eggs, and don't put them in cases until they are cool.
- Store eggs in a cool, humid but well-ventilated place.
- Market eggs regularly and frequently.

Maintain Quality of Farm-Stored Grain

The Texas Agricultural Extension Service advises that once farm-stored grain is dried to safe moisture limits, certain practices should be followed in order to maintain the quality of the grain during the storage period. The following recommendations are made.

1. When the grain has been dried to the proper moisture content, reverse the fans and pull the air down through the grain.

2. Check the grain temperature at least once each week.

3. Check the moisture content of the grain monthly.

4. Aerate as often as necessary.

5. Check insect activity at least twice monthly and fumigate as required.

6. Keep records on grain temperature and moisture content.

The publication *Maintaining Quality of Farm-Dried and Stored Grain,* Bulletin No. L-233, discusses the above recommendations in detail and is available at local county agents' offices in Texas.

Stubble Management

Proper stubble management on harvested fields of wheat, oats, and other small grains is the key to increasing both soil fertility and crop yields in the northern Blacklands of Texas, according to a recent report by the Texas Research Foundation.

T. C. Longnecker, chief soil scientist at the foundation, recommends that nitrogen fertilizer be applied to the stubble, which then should be disked or otherwise worked into the soil. The nitrogen aids in decomposition of the straw and the formation of organic matter in the soil. Without nitrogen, the straw rots slowly and has a depressing effect on the yield of the next crop.

Many farmers have followed the practice of burning stubble in order to avoid the depressing effects of the slowly rotting stubble. If this practice is continued, the organic matter in the soil eventually is destroyed, leaving it sterile and unproductive.

A yield of 20 bushels of wheat or 50 bushels of oats per acre usually results in yielding a ton of straw. The recommended application of nitrogen fertilizer is 20 pounds for each ton of straw.

Grain Sanitation

Farmers who wish to take advantage of the 1955 price support program on wheat must meet more specific standards of grain sanitation, reports W. S. Allen, Extension agricultural engineer of Texas A. & M. College.

Under a revised program of the Food and Drug Administration, if wheat contains more than two rodent pellets per pint — or comparable amounts of contamination — or contains 2 percent or more, by weight, of kernels visibly damaged by insects, it does not meet the minimum requirements of wheat for food. Wheat not meeting these standards must be disposed of in nonfood uses.

Wheat stored on the farm as security for price support loans will be sample-tested at regular intervals and at the time of delivery to the Commodity Credit Corporation. The new requirements do not apply to 1954-loan or -purchase wheat, except that if any 1954 wheat is resealed on the farm, it must meet the new sanitation standards. Last year's wheat not meeting the standards can be delivered to the CCC under the provisions of the 1954 loan and purchase agreement program.

Information on the revised sanitation program may be obtained from county Agricultural Stabilization Offices or from local county agricultural agents.

Seventy-six percent of the Nation's sheep and lamb population of 30,931,000 is in 15 states. Eight of the top states are in the western and southwestern sections of the country: Texas, Wyoming, California, Montana, Colorado, Utah, New Mexico, and Oregon. They account for 53 percent of the sheep and lambs in this country. The other seven top states are located in the Midwest: Ohio, Iowa, South Dakota, Minnesota, Missouri, Nebraska, and Illinois. They provide 23 percent of the national total.

The *Agricultural News Letter* is prepared in the Research Department under the direction of J. Z. Rowe, Agricultural Economist.