

## Introduction to the Questionnaire

Crop storage on the American farm plays a vital role in each farm's operation and profitability. There are several methods of crop storage, including concrete tower silos, bunker silos, silage hags, large round bales, and small rectangular bales.

Each method will affect the farm operation in a number of ways:

The amount of labor required for storage and feeding

The amount of crop lost through harvest and storage

The required investment

Convenience in feeding

Versatility in feed selection

The purpose of this questionnaire is to evaluate different methods of storage that you may consider using on your farm. The information you supply will be used in the analysis -- the more detailed your information, the more accurate the report. In those instances where you may not have certain information, the report will automatically use data that would represent the most accurate approximation. The report is to be only as a comparison and does not guarantee any specific results. Farm management techniques, weather, and a variety of factors can affect farm storage



### Example of Defaults

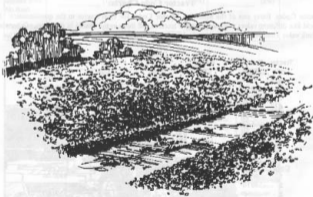
Throughout this report you are asked a number of questions to answer with information that represents the conditions on your farm. For many of these questions you may not know a specific answer. Where it is practical, default values have been listed to the right of the question. These values will be used in the analysis for questions that you leave blank. We will substitute your values where you indicate.

Example:

|       |                                  |    |
|-------|----------------------------------|----|
| _____ | Years to Finance Packing Tractor | 10 |
| _____ | Total packing hours              | ** |

Note: The number to the right indicates our default value. If you were to leave this question blank, 10 years would be used in our calculations.

In the second questions, “ \*\* ” appears. These indicate that you must provide an answer to this question for us to complete the evaluation.



## Questions for All Types of Storage:

Types of storage to be evaluated:

- \_\_\_\_\_ Tower Silo
- \_\_\_\_\_ Bunker
- \_\_\_\_\_ Silage Bag
- \_\_\_\_\_ Round Bale
- \_\_\_\_\_ Square Bale



|                                  |                  |
|----------------------------------|------------------|
| _____ Type of Crop (corn or hay) | __               |
| _____ % of protein in crop       | hay 18% corn 9%  |
| _____ % of energy in crop        | hay 63% corn 70% |
| _____ % moisture at harvest      | 65%              |
| _____ Tons crop per acre         | hay 10 corn 20   |
| _____ # acres harvested/stored   | __               |
| _____ Milk -- price per pound    | \$0.10           |
| _____ Interest Rate              | 10%              |
| _____ Labor Rate (hourly)        | \$10.00          |

## Tractor Code Charts:

Tractor Codes: Enter one of the following Tractor Codes for each tractor in the questionnaire. If you would like different values assigned for your tractors, fill them in the spaces in the chart. Otherwise, the default value listed will be used in the calculations throughout this analysis.

| Tractor Code | Tractor Type | Your Hourly Cost | Default Hourly Cost | Your Purchase Cost | Default Purchase Cost |
|--------------|--------------|------------------|---------------------|--------------------|-----------------------|
| 1            | 190 HP       | _____            | \$20.00             | _____              | \$74,100              |
| 2            | 140 HP       | _____            | \$15.00             | _____              | \$58,500              |
| 3            | 100HP        | _____            | \$10.00             | _____              | \$40,100              |
| 4            | 75HP         | _____            | \$8.00              | _____              | \$26,900              |
| 5            | 60HP         | _____            | \$6.00              | _____              | \$21,400              |
| 6            | Skidsteer    | _____            | \$8.25              | _____              | \$16,000              |

| Tractor Code | Tractor Type | Your Depreciation Years | Default Depreciation Years | Your Maintenance per year | Default Maintenance per year |
|--------------|--------------|-------------------------|----------------------------|---------------------------|------------------------------|
| 1            | 190 HP       | _____                   | 7                          | _____                     | \$200.00                     |
| 2            | 140 HP       | _____                   | 7                          | _____                     | \$200.00                     |
| 3            | 100HP        | _____                   | 7                          | _____                     | \$200.00                     |
| 4            | 75HP         | _____                   | 7                          | _____                     | \$200.00                     |
| 5            | 60HP         | _____                   | 7                          | _____                     | \$200.00                     |
| 6            | Skidsteer    | _____                   | 7                          | _____                     | \$200.00                     |

### Values for Losses Used in the Storage Analysis

The following are the harvest, storage, and feeding losses for each type of storage used in this analysis. If you would like a different value used in your analysis, please fill in the value in the space provided. The default value listed will be used for any amount not otherwise specified by you.

#### Losses in Harvest

| Storage Method         | Volume Lost   | Additional Protein Lost | Energy Lost |
|------------------------|---------------|-------------------------|-------------|
| Silo                   | _____ [5%]    | _____ [0%]              | _____ [0%]  |
| Bunker                 | _____ [5%]    | _____ [0%]              | _____ [0%]  |
| Silage Bag             | _____ [5%]    | _____ [0%]              | _____ [0%]  |
| Round Bale<br>No Rain  | _____ [25%]   | _____ [3.5%]            | _____ [3%]  |
| Round Bale<br>w/ Rain  | _____ [40%]   | _____ [20%]             | _____ [20%] |
| Square Bale<br>No Rain | _____ [17.4%] | _____ [3.5%]            | _____ [3%]  |
| Square Bale<br>w/ Rain | _____ [32.6%] | _____ [20%]             | _____ [20%] |





### Losses in Storage

### Losses in Feeding

| Storage Method         | Volume Lost   | Additional Protein Lost   | Energy Lost               | Volume Lost             |
|------------------------|---------------|---------------------------|---------------------------|-------------------------|
| Silo                   | _____ [8%]    | _____ [0%]                | _____ [0%]                | _____ [1%]              |
| Bunker                 | _____ [18%]   | _____ [2.5%] <sup>a</sup> | _____ [2.5%] <sup>a</sup> | _____ [see b]           |
| Silage Bag             | _____ [0%]    | _____ [0%]                | _____ [0%]                | _____ [0%] <sup>c</sup> |
| Round Bale<br>No Rain  | _____ [14.2%] | _____ [20%] <sup>a</sup>  | _____ [20%]               | _____ [see d]           |
| Round Bale<br>w/ Rain  | _____ [14.2%] | _____ [20%] <sup>a</sup>  | _____ [20%]               | _____ [see d]           |
| Square Bale<br>No Rain | _____ [3.6%]  | _____ [0%]                | _____ [0%]                | _____ [1%]              |
| Square Bale<br>w/ Rain | _____ [4%]    | _____ [0%]                | _____ [0%]                | _____ [1%]              |

a: % of stored value    b: 5% if more than 4.6" fed per day, 10% if less than 4.6" fed per day

c: Same as minimum for bunker    d: 5% transportation + 9% if fed with rack or 45% if fed without rack

## Questions About Your Harvest

Complete the following questions used to evaluate all storage methods:

|                                       |       |                                      |     |
|---------------------------------------|-------|--------------------------------------|-----|
| _____ Tractor Code of Chopper Tractor | **    | _____ Average Maintenance of 1 Wagon | 25  |
| _____ % time used for chopping        | **    | _____ Number of people at harvest    | **  |
| _____ Tractor Code of Wagon Tractor   | **    | _____ Hours to Harvest               | **  |
| _____ % time used for wagons          | **    | _____ % Tractors to finance          | 100 |
| _____ Chopper Cost                    | 16600 | _____ Years to Finance Tractors      | 10  |
| _____ Depreciation years of Chopper   | 7     | _____ % of Chopper cost to finance   | 100 |
| _____ Maintenance of Chopper          | 100   | _____ Years to finance Chopper       | 10  |
| _____ Number of wagons                | 7     | _____ % of Wagon cost to finance     | 100 |
| _____ Wagon Cost (average)            | 7800  | _____ Years to finance wagon cost    | 10  |
| _____ Depreciation years of Wagons    | 7     |                                      |     |



## Questions for Evaluating Tower Silo Storage

If you selected 'Tower Silo' for evaluation, answer the following questions.



|       |   |       |
|-------|---|-------|
| _____ | Silo Diameter (in feet)                       | **    |
| _____ | Silo Height (in feet)                         | **    |
| _____ | Cost of Silo                                  | **    |
| _____ | Depreciation of Silo (years)                  | 7     |
| _____ | Silo maintenance                              | 200   |
| _____ | % of Silo to be financed                      | 100   |
| _____ | Years to Finance Silo cost                    | 20    |
| _____ | Blower Cost                                   | 5000  |
| _____ | Blower Depreciation                           | 7     |
| _____ | Blower Maintenance                            | 50    |
| _____ | % of Blower to be financed                    | 100   |
| _____ | Years to finance blower                       | 10    |
| _____ | Tractor code for blower tractor               | **    |
| _____ | % time tractor used for blower                | **    |
| _____ | % of Blower Tractor to be Financed            | 100   |
| _____ | Years to Finance Blower Tractor               | 10    |
| _____ | Number people on blower/ blower tractor       | **    |
| _____ | Cost of Unloader                              | **    |
| _____ | Depreciation of Unloader (years)              | 7     |
| _____ | H.P. of Unloader (total)                      | 7.5   |
| _____ | Unloader Maintenance per year                 | 100   |
| _____ | Electric cost/hr to run unloader              | 0.52  |
| _____ | % of unloading time monitoring silo unloading | **    |
| _____ | Total Hours for Unloading per day             | **    |
| _____ | Volume unloaded from silo (tons/hr)           | **    |
| _____ | Feeding Equip. cost (mixer, feeder, conveyor) | 29000 |
| _____ | Depreciation of Feeding Equipment (years)     | 7     |
| _____ | HP of feeding equipment motors                | 15    |
| _____ | Electric cost/hr to run motors                | 1.05  |
| _____ | Feeding Equipment maintenance per year        | 250   |
| _____ | % of feed lost during feeding                 | 1     |
| _____ | % of unloader & feeding equip to be financed  | 100   |
| _____ | Years to finance unloader & feeding equip.    | 5     |

## Questions for Evaluating Bunker Storage

If you selected 'Bunker' for evaluation, answer the following questions:

|       |  |       |
|-------|--|-------|
| _____ | Length of Bunker                             | __    |
| _____ | Width of Bunker                              | __    |
| _____ | Height of Bunker                             | __    |
| _____ | Investment for Bunker                        | __    |
| _____ | Depreciation of bunker (years)               | 7     |
| _____ | Bunker maintenance per year                  | 50    |
| _____ | % of Bunker to be financed                   | 100   |
| _____ | Number years to finance Bunker Cost          | 20    |
| _____ | Is Bunker Covered? (immediate/7 days/not)    | __    |
| _____ | What is the Feedout Rate (inches per day)    | __    |
| _____ | Tractor code for packing tractor             | __    |
| _____ | % time tractor used for packing              | __    |
| _____ | % of Packing Tractor to be financed          | 100   |
| _____ | Years to Finance Packing Tractor             | 10    |
| _____ | Total packing hours                          | __    |
| _____ | Plastic cost to cover                        | __    |
| _____ | Man hours to cover                           | __    |
| _____ | # tires used to cover                        | __    |
| _____ | Cost/tire to cover                           | 1     |
| _____ | Tractor code for unloading tractor           | __    |
| _____ | % time tractor used for unloading            | __    |
| _____ | Bucket cost (if used)                        | 5000  |
| _____ | Bucket Depreciation (years)                  | 7     |
| _____ | Tractor hours to feed per day                | __    |
| _____ | Tractor code for mixer tractor               | __    |
| _____ | % time tractor used for feeding              | __    |
| _____ | Unloading wagon cost (mixer)                 | 13000 |
| _____ | Depreciation for mixer (yrs)                 | 7     |
| _____ | Time tractor and mixer operated per day      | __    |
| _____ | % of unloading & feeding tractors to finance | 100   |
| _____ | years to finance tractors                    | 10    |
| _____ | % of Wagon to Finance                        | 100   |
| _____ | Years to finance mixer                       | 5     |





## Questions for Evaluating Square Bale Storage

If you selected 'Square Bale' for evaluation, answer the following questions:

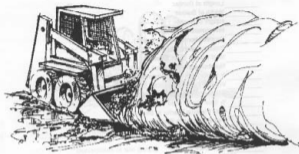
|  |      |  |     |
|--|------|--|-----|
| _____ Baler Cost                               | 9300 | _____ Elevator Maintenance per year        | 50  |
| _____ Baler Depreciation (years)               | 7    | _____ % elevator financed                  | 100 |
| _____ Baler Maintenance                        | 200  | _____ Years to finance elevator            | 5   |
| _____ Baler Cost/Hour                          | 10   | _____ Electric cost for elevator           | 0.7 |
| _____ % Baler to be Financed                   | 100  | _____ Hours elevator used                  | **  |
| _____ Number Years to finance Baler            | 10   | _____ Number of people to harvest          | **  |
| _____ Wagon Cost (each) for harvest            | 7800 | _____ Hours to Harvest                     | **  |
| _____ Number of Wagons for harvest             | **   | _____ % of tractors to be financed         | 100 |
| _____ Wagon Depreciation (years)               | 7    | _____ Number of Years to finance tractors  | 10  |
| _____ Tractor code for Baler Tractor           | **   | _____ Cost of building to store bales in   | **  |
| _____ % time tractor used to operate Baler     | **   | _____ Years to depreciate storage building | 7   |
| _____ Tractor code for Wagon Tractor           | **   | _____ % of building used to store bales    | **  |
| _____ % time wagon tractor used for harvest    | **   | _____ Building Maintenance                 | 100 |
| _____ Elevator or bale hook tractor code       | **   | _____ % of storage building financed       | 100 |
| _____ % time elevator tractor used for harvest | **   | _____ Years to finance storage building    | 20  |
| _____ Baling material cost                     | **   | _____ Hours to feed per day                | **  |
| _____ Elevator Cost                            | 4000 | _____ Number people to feed                | **  |
| _____ Years to depreciate Elevator             | 7    |  |     |



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## Questions for Evaluating Silage Bag Storage

If you selected 'Silage Bag' for evaluation, answer the following questions.



|       |  |       |
|-------|--|-------|
| _____ | Length of Silage Bag                               | __    |
| _____ | Diameter of Silage Bag                             | __    |
| _____ | Filling Cost per Bag (to have custom filled)       | 625   |
| _____ | # bags used  | __    |
| _____ | Material Cost/bag (if not included in custom fill) | 295   |
| _____ | Hours to fill all Silage Bags                      | __    |
| _____ | Is operator for bagging tractor supplied by you    | __    |
| _____ | Tractor code for bagging tractor                   | __    |
| _____ | % time Tractor used for bagging                    | __    |
| _____ | % of bagging tractor to be financed                | 100   |
| _____ | Years to finance bagging tractor                   | 10    |
| _____ | Hours to operate bagger (total)                    | __    |
| _____ | Hours to feed from bag per day                     | __    |
| _____ | Tractor code for emptying feed from bags           | __    |
| _____ | % of time tractor is used for feeding              | __    |
| _____ | Tractor code for second tractor                    | __    |
| _____ | % time 2nd tractor used in feeding                 | __    |
| _____ | Unloading wagon cost (mixer)                       | 13000 |
| _____ | Depreciation of mixer (years)                      | 7     |
| _____ | Time tractor and mixer operated per day            | __    |
| _____ | Hours to gather plastic per week                   | __    |
| _____ | % of Feeding tractors and mixer to finance         | 100   |
| _____ | Years to finance feeding tractors and mixer        | 5     |

1. Is this the best option?

2. Is this option better than the other options?

3. Is this option the best option?

4. Is this option the best option?

5. Is this option the best option?

6. Is this option the best option?

7. Is this option the best option?

8. Is this option the best option?