

## **DECIDING ON A SILAGE STORAGE TYPE**

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The decision to increase the quantity of forage harvested and stored as silage may result from a desire to accomplish one or more of the following objectives: feed a total mixed ration, avoid weather effects on hay, feed more cattle, improve labor efficiency, feed a larger proportion of corn silage in the ration, or store a bountiful harvest. No matter what the reason, some method of storing the increased quantity of silage must be determined. The decision on which storage system to select should be based on economic as well as management criteria. Structures (tower silos, bunker silos, etc.) have a high initial costs which must be amortized over an extended period to keep annual cost low. If these structures will be used throughout their expected life (20 years), they may be a reasonable choice. However, if they will be abandoned after a short period of use (5-10 years), they may be a poor choice based on annual cost. Silage piles and silo bags make good economic sense for short-term storages because they require relatively low capital investments, especially when the equipment needed to make them effective is rented or leased.

If current storage and feeding systems will persist for an extended period (>10 years), the new storage system should be selected to be highly compatible with the current system. For example, if a dairyman uses tower silos and feeds in the barn and an outside mechanical bunk (possibly a stationary TMR) and plans to continue this process for the next 20 years, a tower silo for added silage capacity may be a logical choice. This is because the tower silo can be made to mesh with the existing feeding system and requires little change in management to make the system work. However, the same dairyman who plans to change to mobile TMR/drive-by feeding, move cows from the stall barn, or leave the cattle feeding business in the relatively near future may want to select a lower capital cost alternative.

Silo bags are a very flexible silage storage alternative. Storage capacity can increase/decrease with needs by adding/deleting bags. Feed can be conveniently inventoried and fed out based on ration requirements. The feed-out face on an 8-foot diameter bag yields about 700 lbs DM/ft of removed silage. At 26 lbs forage DM/cow-day, this one foot will feed about 27 cows. Thus, bags can be used for small herds, provided the forage can be conveniently moved into the feeding system. Silo bags work best with existing tower silo storage when the bags can be located close to the tower silos. This reduces the time spent moving silage from bags into the existing feeding system. The modular nature of bags makes them a logical choice for the dairy, which is in a slow expansion mode. Silo bags can also be used for large dairies (>500 cows).

When plans are to expand the storage to double the current capacity in a relatively short period (<10 years), this is a major change; the best future storage system should be given higher priority over the current storage system. If they will be managed properly and labor is available, silage piles, bunker silos or silo bags may be more economical choices than tower silos for large volumes of silage. Give adequate consideration as to how you will evolve from the current system to the future storage. This may involve using existing storage as part of the feed storage system until a large repair or equipment replacement must be made. When this happens, the

existing component may be abandoned and the investment made in the future system. For example, when a tower silo unloader must be replaced, this may be a logical time to abandon that silo in favor of the selected future storage.

Bunker silos and silage piles are often selected when large quantities of silage are stored. They are frequently arranged as a component of a feed center along with grain and mineral storage. Packing of bunkers and piles is an essential process for good silage preservation. Labor must be available to operate the tractor used to push silage into the storage and to pack the silage. When this labor is not available or obtainable, one should select a storage system, which does not require this additional labor. Bunker silos and silage piles require a cover that excludes air and precipitation to obtain reasonable silage preservation. If these covers are not installed, the annual cost of silage storage will be high enough to discourage this alternative in favor of silo bags or large diameter tower silos.

Figure 1 is a flow chart, which can be used to help select a type of silage storage that may work best for you. This flow chart uses major decision points to direct you toward a given type of storage. Other considerations (personal preferences, financial constraints, existing facilities/labor/management, etc.) may influence your decision to select a storage other than what the flow chart suggests. Use the flow chart only as a guide in making your final choice. Additional information which may help you with your decision can be obtained through the reference materials listed below and available from the TEAM FORAGE website located at the URL list as:

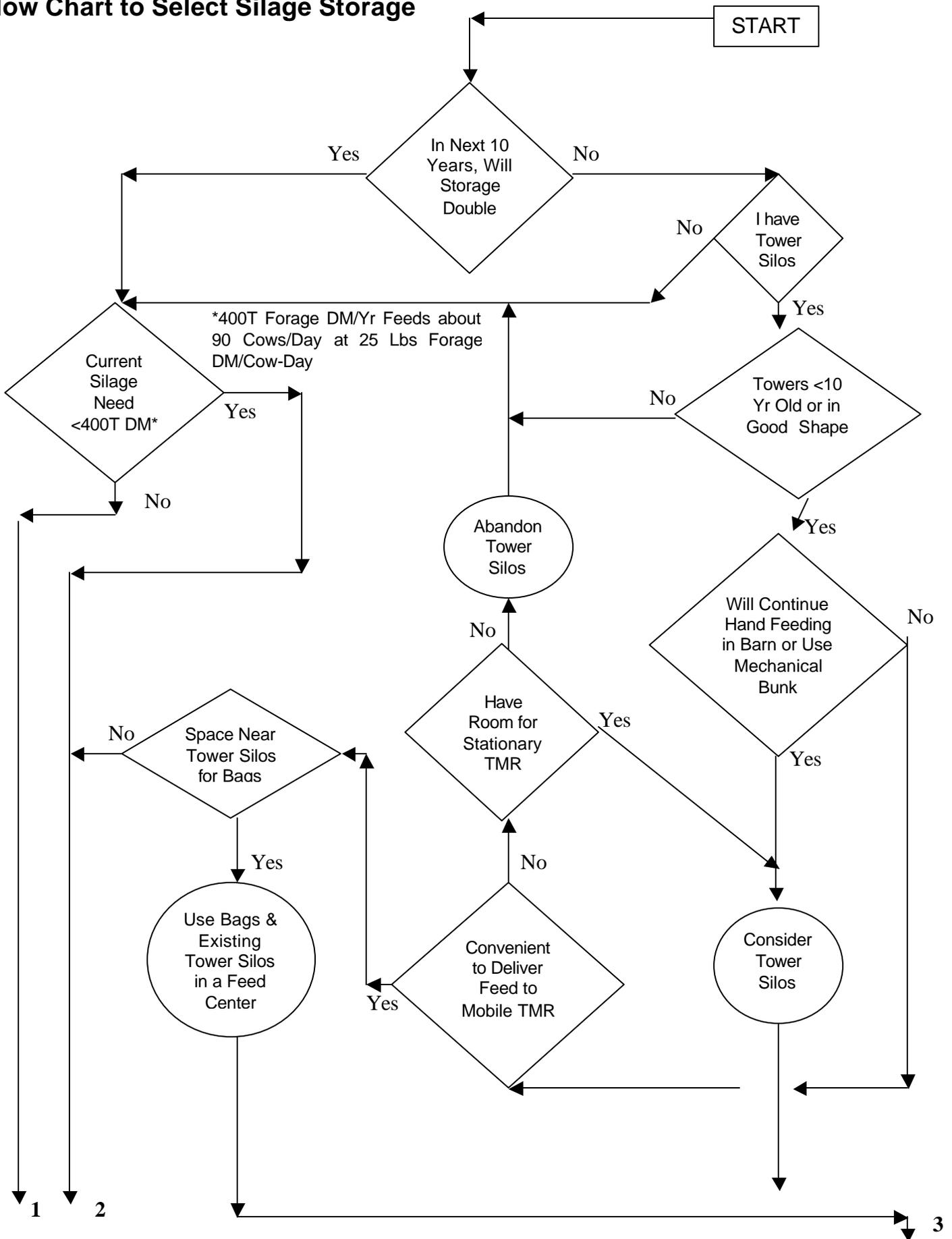
<http://www.uwex.edu/ces/crops/uwforage/storage.htm>.

#### REFERENCES AVAILABLE at WEBSITE ABOVE

- Silage Bag Capacity
- Bunker Silo Cover Alternatives
- Bunker Silo Density Calculator – Spreadsheet
- Bunker Silo Sizing Spreadsheet and Documentation
- Cost of Forage Storage Spreadsheet and Documentation
- Bagged Silage or Tower Silos? Options for the Non-expanding Dairy Farm
- Bagged Silage or Tower Silos? Options for the Expanding Dairy Farm
- Drive-over Silage Pile Construction
- How to Store Silage with Increased Profitability and Safety

deciding on storage3

# Flow Chart to Select Silage Storage



# Flow Chart to Select Silage Storage (cont.)

