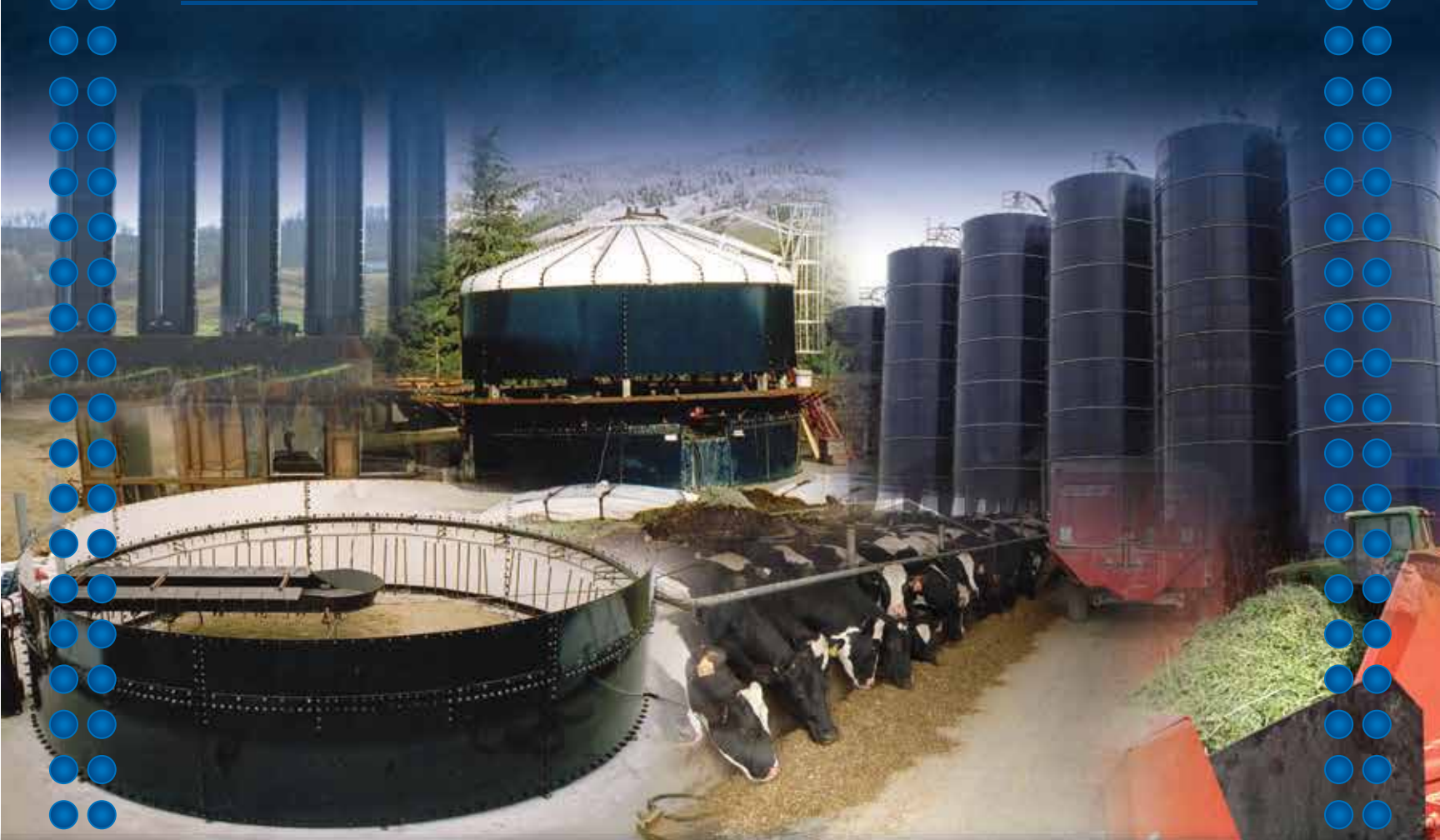




HARVESTORE®

Feed Storage Structures



CST
STORAGE

A Division of CST Industries, Inc.

Harvestore. For a Lifetime of Value.

Harvestore® has built its reputation on providing dairy and livestock with superior feed quality. For years, producers using Harvestore's oxygen-limiting technology have seen the freshness of the haylage and high moisture corn coming from the unloader, the limited spoilage and dry matter loss, and the high palatability that usually results in greater efficiency.

The "new" Harvestore is better than ever with a proven track record of high return on investment, convenience and speed to load and unload. While a Harvestore may not fit every operation, it can be an important component of your complete feed and commodity storage system.

Many farmers who own both Harvestores and bags or bunkers choose to store their best forage and feed their top producers from Harvestore units. That's because forage quality influences milk production, reproduction efficiency and profits. Harvestores have been proven to be the best storage system to preserve forage quality.

Get Less Dry Matter Loss With a Harvestore

New research from the U.S. Dairy Forage Research Center confirms that there is less dry matter loss from forage stored in a Harvestore versus bags and bunkers. This forage also exhibited more nutrient value based upon the cow's production of fat-corrected milk (FCM). (See the folder pocket for details on the study.)

Furthermore, Kansas State University reports the dramatic differences in dry matter loss between a Harvestore, bag or bunker.

	Harvestore	Bags	Bunkers
Dry Matter Loss %	3 – 8 %	12+ %	12 – 25 %

K. Bolsen, Kansas State University

A Harvestore for High Moisture Grain

High moisture grain generally refers to grain with a kernel content of 22 to 28% moisture that has undergone natural fermentation in a storage structure that reduces the access of air to the feed. (See the chart below for optimum moisture levels.) High moisture grain has a pleasant fermented aroma and palatability that livestock noticeably prefer.

Optimum moisture levels for high moisture grain

Shelled Corn	28%
Corn and Cob Mix	30 to 35%
Sorghum Grains	28%
Small Grains (barley/wheat)	28%

Advantages to feeding high moisture grain are:

- Ability to harvest earlier and reduce field losses
- Ability to plant later maturing hybrids
- Eliminate drying costs
- Carbohydrates more readily digested
- Improved livestock feed conversion rates

Compare Bag, Bunker and Harvestore Storage Costs with StoragePro

StoragePro® is a computer program used to calculate and analyze real-life feed storage costs. By providing an impartial analysis, StoragePro allows producers to use data from their own farms to calculate all the costs associated with the use of a Harvestore System as well as concrete bunkers, concrete stave silos or storage bags. Producers can enter their own costs for construction, maintenance, spoilage and routine operating expenses to give an overall annual cost for each storage option.

The first step in controlling feed costs is knowing what they are. Your authorized CST Storage dealer can help by providing a StoragePro analysis for your operation.

Haylage Only Comes From A Harvestore!

Forage stored at 40 to 55% moisture is known as haylage. Harvestore introduced haylage to livestock producers over 50 years ago. While many refer to all stored forage by this name, true "haylage" only comes from a Harvestore.

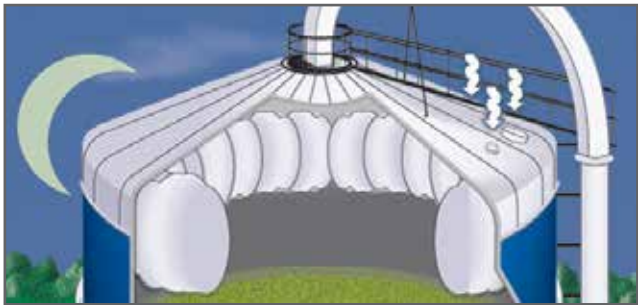
Harvestore haylage has many benefits, but none more important than maintained feed quality and minimal dry matter losses. Harvestore structure owners have been able to reduce storage loss and waste at feeding time and get their animals producing closer to their genetic potential.



Breather Bags. An aid to proper fermentation.

Breather bags are a special feature designed into a Harvestore System to help reduce the amount of air that can get into the structure. While all feed storage systems allow air to come into contact with feed, proper operation of a Harvestore System can minimize the amount of air contacting feed during storage. This special system helps minimize dry matter loss and preserve feed quality.

Breather bags are typically located inside the Harvestore structure. They can also be located outside the structure if space is available. Gases expand and contract as temperatures rise and fall. When gases inside the Harvestore cool and shrink, air is pulled into the breather bags and assumes the additional air space. When heat expands gases, air is pushed out of the breather bags and exits the structure. You can think of this activity much like inhaling and exhaling without the air contacting the stored crop.

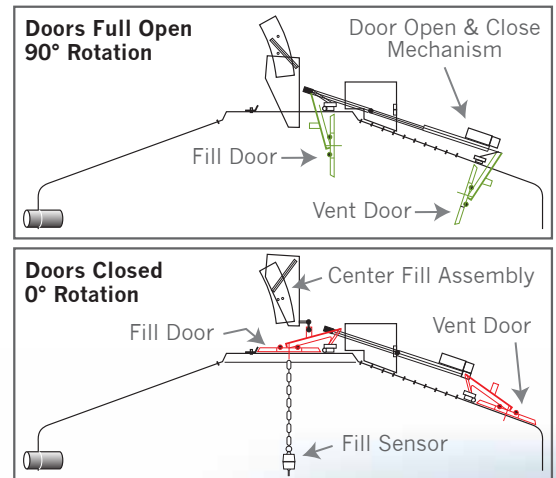


The controlled inward and outward movement of air lessens the dilution of valuable fermentation gases and contributes to a beneficial preservation and fermentation environment. There is no equivalent accessory capable of performing this function in a bag or bunker.

Push-Button Fill Doors. For convenience and safety.

Push-Button Fill Doors™ are a convenient option for Harvestore Systems. The Push-Button Fill Door system replaces the need for climbing to the top of a Harvestore structure and manually opening and closing the center fill and air exhaust door for normal fill operation.

Push-Button Fill Doors are simple to use – just push a button on the convenient ground level control panel. A touch of the OPEN DOORS button opens the center fill and vent door and positions the Model 135 center fill chute for filling. A series of indicator lights are illuminated to show doors are open, closed, in motion or when structure is full.



More Speed. More Power.

HARVESTORE™

**XL
UNLOADER**

CST Storage listened to the needs of Harvestore owners who wanted a faster unloading system that compared to the unloading speed of bags and bunkers. The new Harvestore XL™ Unloader series is more powerful, durable and efficient than its predecessors. Expect “extra large” performance from the Harvestore XL Unloader.

- The XL 400 control box powers a 30 horsepower 3-phase motor. The XL 200 control box powers a 25 horsepower 3-phase motor. Both can connect to either a **1-phase or 3-phase power source**
- Direct arm drive with new Load Sensing System to control arm force
- Variable drive control system with high, low and four intermediate speeds
- Stainless steel bushings on cutter chains and redesigned sprockets to minimize bushing wear



- Chain pulling capacity virtually twice as strong as the Alliance® unloader chain
- The Harvestore XL Unloader 400 is capable of unloading 400 pounds per minute of 55 percent moisture haylage
- Slow accelerated start to eliminate shock loading

A Harvestore System Still Provides Cutting-Edge Technology

A Harvestore System contains many features that make it the best choice for storing quality forage and high moisture grain. Using only the best materials and stringent construction guidelines, a Harvestore System can return greater lifetime value than plastic bags or bunker silos.

Push-Button Fill Doors

- Opens and closes fill doors with the push of a button
- Eliminates the strenuous job of climbing the structure

Two-Way Pressure Relief Valve

- Protects structure from excessive pressure or a vacuum inside the structure

Breather Bags

- Standard, unique feature in all Harvestore Systems
- Act as bladder for gas expanding and contracting within the structure
- Helps to minimize air that comes in contact with feed

Web Truss Stiffeners

- Increase structure's ability to resist wind forces
- Meets rigid design standards
- Exclusive, proprietary design

Multi-Purpose Design

- Forage or High Moisture Grain
- Expandable and movable
- Unloader flexibility
- Available up to 106 feet high
- New larger models available

Glass-Fused-to-Steel Construction

- Molten glass fused to both sides of the steel sheets
- Hard, durable and long lasting
- Sheets designed to meet varying loading requirements from top to bottom
- Vitrium™ interior coating formulated to resist acids from fermented feeds
- Edges protected with Edgecoat®
- Smooth sidewalls allow feed to slide down easily

Specially Made Bolts

- Designed to handle specific joint stress loads
- Acid-resistant bolt heads inside structure
- Smooth, rounded cap minimizes resistance to downward movement of feed

Expandable and Movable

- Many models can be made taller to increase capacity as your operation grows
- Structures can be taken down and moved by an authorized CST Storage dealer

Urethane-Based Sealant

- A sealer specifically formulated for sheet joints
- Sealer cures in place to form a durable rubber-like gasket

Lightweight Aluminum Doors & Hatches

- Gasketed with flexible seals
- Clamped tightly with "marine-type" handles

Engineered Concrete Foundation

- Built to CST Storage specifications on a monolithic footing
- Matched to specific soil strength
- First ring of glass-fused-to-steel sheets is attached to footing
- Steel unloader trough integrated into foundation for consistent and stable operation
- An overall unitized, engineered base to support structure

Unloaders

- Two Harvestore XL Unloader models available
- Designed with the latest technology to meet your operation's needs



Research shows benefits over bags and bunkers

A recently completed study confirmed that haylage stored in a Harvestore experiences less dry matter loss than haylage stored in bags and bunkers.

	Bunker silo	Bags	Harvestore
Dry Matter Loss (%)	16.9	11.3	4.3

Source: US Dairy Forage Research Center, 2005-2006

The study also showed that cows fed haylage from a Harvestore produced more Fat-Corrected Milk (FCM) than those fed from a bag or bunker. The milk components chart shows the differences between storage options.

Table 1

Effect of Alfalfa Storage System on Intake and Milk Yield				
Variable	Bag	Bunker	Harvestore	P>F
DMI, lb/d	53.1	52.9	52.9	0.93
Milk, lb/d	86.4	86.6	87.5	0.60
Milk/DMI	1.63	1.64	1.67	0.10
3.5% FCM, lb/d	86.0b	86.2b	91.9a (+ 5.7 lbs)	<0.01
BW Gain, lb/d a,b (P<0.01)	0.40	0.73	0.93	0.13

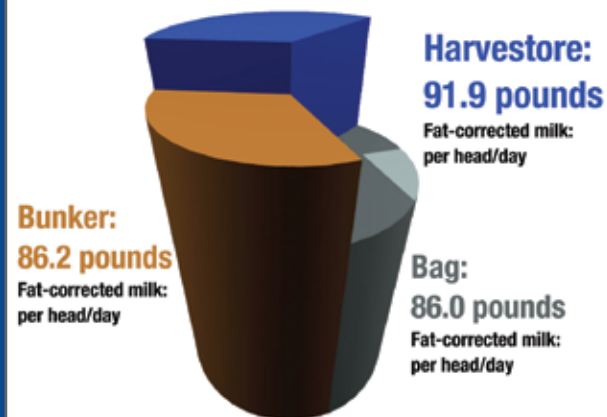
Source: US Dairy Forage Research Center, 2005

Alfalfa haylage stored in:



2005-2006 U.S. Dairy Forage Research Center

Cows fed alfalfa from:



U.S. Dairy Forage Research Center

Harvestore Branded Parts and Rebuild Kits

Harvestore Branded™ service parts are engineered and manufactured to strict tolerances so they perform under extreme conditions. Using the wrong part, or a part not engineered to meet the demands of the product, jeopardizes the entire operation and longevity of your Harvestore structure and/or unloader. Only CST Storage authorized dealers have direct access to the complete line of factory specified Harvestore Branded service parts.

Harvestore Branded Parts

- Hooks
- Cutter Arm Outer Sprocket Assembly
- Pawls
- Center Sprocket Assembly
- Gears, Shafts and Pinions
- Cutter Arm Chain Guide
- Cutter Chain Bushings/Pins
- Cutter Chain Sidebars

Rebuild Kits

Pre-owned structures are available from your authorized CST Storage dealer. A pre-owned structure can be rebuilt to meet the same rigid structural design specifications required of new structures.

Each pre-owned structure erected by an authorized dealer will be constructed with rebuild kits using Harvestore Branded parts. The combination of genuine Harvestore Branded parts and authorized Harvestore dealer service will ensure quality, satisfactory operation and longevity.

Talk to your Authorized Harvestore Dealer

Harvestore Systems are designed and engineered for specific purposes. That's why it is extremely important to purchase a structure and service parts from an authorized CST Storage dealer in the United States and Canada. Only an authorized dealer has the specialized equipment and timely, direct-from-the-factory knowledge to do the job right.



Each Harvestore System is customized to meet the needs of your farm. Diameters, depth of footings, the detailed trough and floor design for the unloader...even the sequence and thickness of glass-fused-to-steel sheets will vary from structure to structure. Improper construction or repairs performed by non-authorized Harvestore dealers can lead to faulty operation or structural failure.

Manufacturer warranties are only applicable on products built by an authorized dealer to factory specifications.



Detwiller Farms - Ohio
September 2006

To learn more about putting a Harvestore System "Back on your Horizon," contact your local authorized CST Storage dealer, visit www.harvestore.com or call 815-756-1551.



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