

# Hay and Forage Industries' returnables return savings

Hay and Forage Industries (HFI) in Hesston, Kan., a 50-50 joint venture between Case Corporation and AGCO, is a leading developer and manufacturer of agricultural equipment. It employs about 1,100 people and has a manufacturing plant of over 1 million square feet that produces 52 products in six product families: self-propelled windrowers, pull-type windrowers, pull-type forage harvesters, round and square balers, and bale processors. Waste minimization has been practiced since the late 1970's, with much increased emphasis since 1990.

## Motivation

HFI wanted to have a high percentage of inbound parts delivered in returnable containers in order to reduce costs and wastes, be proactive to legal and environmental concerns, reduce freight damage to parts, improve storage and handling of parts, reduce shipping frequencies, and enhance their public image.

The constraints of implementing a returnable container program required an initial investment for purchase of the returnable containers, tracking and logistics involved with return of the containers to appropriate vendors, and the learning curve for the operational staff.

## Old Process

Previously, parts were shipped to HFI in cardboard boxes and on wooden pallets. Parts often came damaged or rusted and needed to be cleaned before using. Wooden pallets needed to be replaced frequently and old pallets were stored outside in piles and processed into wood chips. Cardboard boxes were thrown away, increasing the amount of dunnage produced. The vendor shipping the parts paid for packaging, increasing the cost Hay and Forage paid per part. Prior to implementation of the returnable container project, Hay and Forage had about 340 tons of trash and 6,190 tons of wood pallets to dispose of per year.

## Strategies

Hay and Forage evaluated its needs for returnable containers based on the quality of the parts received (amount of shipping damage), amount of dunnage for each part, and cost of packag-

ing for each part.

Once a part had been identified as a candidate for a returnable container, HFI made a presentation to the vendor. They shared information on how returnables are beneficial to both HFI

and to the vendor. One of the keys to a successful program of this type is employee involvement. HFI worked with employees at its facility and at the vendors' facility to explain what it was trying to do, and its motivation behind it. Once people understood why things were changing, they were much more willing to accept those changes.

In each case, HFI invited the vendor to visit its facility or people from HFI visited the vendor's facility. The shipping container supplier had constructed a sample rack. Rack design was reviewed with employees on the floors of both HFI and the vendor. Changes were made as necessary and both companies agreed on a returnable design. Then HFI ordered a quantity of racks.

Hay and Forage worked with vendors to schedule return of the shipping containers. In some cases, the shipping containers were sent back to the vendor on a predetermined schedule. In other cases, the vendor issued a purchase order number to Hay and Forage when they were ready to receive the shipping containers. In all cases, Hay and Forage paid for the containers and for their return shipment to the vendors and still saved money.



Reusable containers, such as the one on the right, reduced shipping losses and the amount of dunnage Hay and Forage Industries had to dispose of.



## Case study — Hay and Forage Industries

### Examples

A radiator had dunnage of 0.6 pounds at a cost \$1.07 for disposal. Radiators were easily damaged in shipment; therefore, they were one of the first items targeted for returnable containers.

Radiators had previously been received at HFI in a vertical stack and often those at the bottom of the pile were slightly to moderately damaged due to the weight of the stack. The new rack design, shown in the photograph, shipped radiators in a horizontal position. This not only prevented damage to the delicate radiator fins, but made unloading them easier.

The new rack is an ergonomically desirable delivery vessel. The bars that help hold the radiators in place on the rack can be easily removed for unloading on the production floor. Hay and Forage saves about \$800 a year by using returnable containers for the radiators. These savings were calculated based on reduction in labor to dispose of the dunnage, landfill costs and handling expenses.



These racks not only reduced shipping losses but were ergonomically more efficient, contributing to increased productivity on the assembly line.

Iron castings had been previously received in cardboard boxes on wooden pallets. If wet, the boxes tore easily, allowing spillage of the heavy castings — an obvious safety hazard. Now HFI uses returnable steel tubs for their castings. These tubs are durable and protect the castings during shipment and storage. They are smaller than the boxes and thus can be used directly on the production line. HFI saves about \$6,000 a year from reduction in labor to dispose of the dunnage, landfill costs and handling

expenses by the use of returnable containers for castings.

Tubular oil coolers have a new shipping container as well. These plastic tubs have a pull-down front door for easy access to the cooling coils. The foam pieces and plastic “slip” sheets are returned in the tubs to the vendor with the containers. Damage to oil coolers has been greatly reduced as a result of this new design. The dunnage has also decreased from 0.8 lbs. per cooler to none. HFI saves about \$1,000 a year by using these returnable containers because of reduced damage and dunnage.

In addition, Hay and Forage has been able to negotiate a reduction in the cost per piece paid to each vendor. This is possible because the vendor also achieves significant savings. HFI saved about \$20,500 in the first year of the returnable program. Vendor savings were \$151,500.

Driver’s seats used in some equipment are purchased from an outside vendor. New returnable shipping racks for the seats resulted in reduced dunnage and shipping damage. The new rack design is easy to use and holds seats securely in place while protecting them during shipment. After accounting for initial cost of the rack and return shipping costs, HFI saved \$18,000 in two years.

Hydraulic lines had been received in bundles on wooden pallets. The new returnable container for hydraulic lines is a rack that allows the lines to be presorted so they are available for production in the order they are needed. Hay and Forage expects savings of \$15,000 as a result of this change. Part of the savings results from increased efficiency in production.

### Results

To summarize the results, HFI has been able to replace its disposable shipping containers with returnable shipping containers for about 20 products. It has achieved the following:

- 1.5- to two-year payback period,
- Total savings of approximately \$240,000 to HFI and vendors,
- Reduced waste (25 percent fewer wood chips, 15 percent less trash),
- Reduced rust on parts received (less cleaning),
- Reduced freight damage,
- Increased productivity through use of racks that facilitate improved ergonomics,
- Involved employees and allowed them to continue to suggest improvements.



The Small Business Environmental Assistance Program’s (SBEAP) mission is to help Kansas small businesses comply with clean air regulations. SBEAP operates through a consortium of the University of Kansas, Kansas State University and Wichita State University. This fact sheet was published by Kansas State University’s Pollution Prevention Institute. For more information, call 800-578-8898 or send e-mail to [SBEAP@ksu.edu](mailto:SBEAP@ksu.edu). The University of Kansas, Kansas State University and Wichita State University are EEO/AA providers.