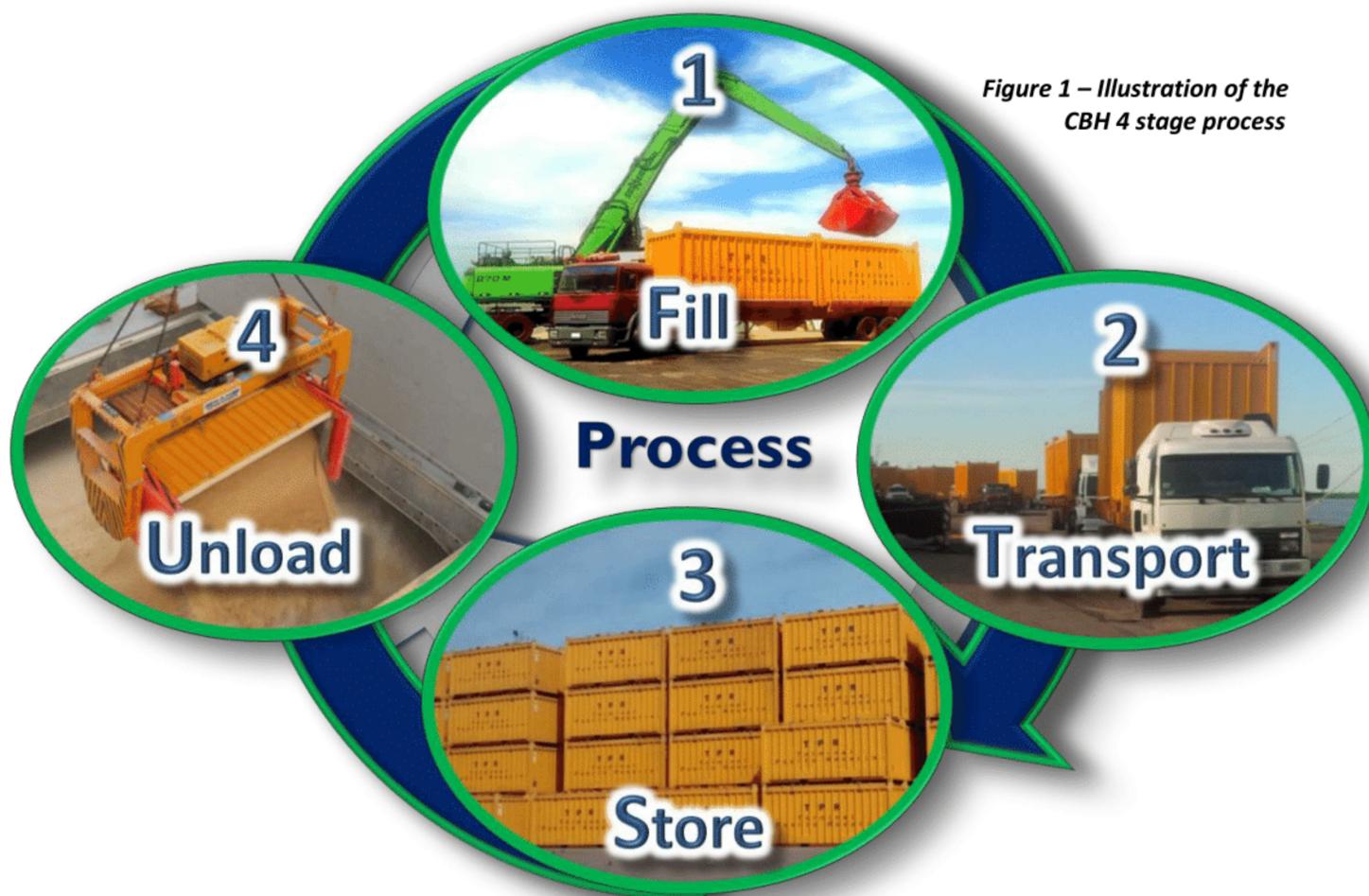


New Route to Market for European Grain

New Bulk logistics system provides alternative to silo and bulk loader method

Following the success of new bulk loading systems in South America and Australia, several companies in Europe are looking at alternatives to get their grain to market, with high capital, silos and bulk loaders providing the only way to export; but now there is an alternative.

Following the lead of many others like Argentina, Africa & Australia, companies in Romania are looking into a new system of bulk loading called Containerized Bulk Handling (CBH). This article shows you a case study of how farmers, traders and logistics companies can use this new system to get their grain to market.



Black Sea Ports and Shipping

At the recent Black Sea Ports Conference in Constanta which hosted ports and terminals in the region, a great deal of discussions during the conference focused on how ports and logistics systems could serve the growing harvest in a region that is fast becoming a food bowl for Europe and the Middle East.

"a key theme at the conference was the growing trend in agricultural exports, and that investing in capacity is critical. The region needs flexible solutions to ensure growth in harvest can find a route to market. The CBH system gained a lot of interest with the delegates"

Conference Convenor - Rory Doyle
5th Black Sea Ports & Shipping 2016, Constanta, Romania



Replicating a proven system

In Argentina they have developed a new flexible way to export grain using the Containerised Bulk Handling system. The grain is loaded, transported and stored in specially designed food grade containers. Once delivered to the marine terminal, the containerized grain is stored at the port awaiting the vessel; replacing the need for expensive silos. Once the vessel arrives, the containers of grain are handled like normal containers until they are tipped into the hatch of the ship using a rotating spreader called RAM Revolver®.

The Old Way

Traditionally, the method of exporting grain involves the use of dump trucks, special bulk rail-wagons, silo and then dedicated bulk loaders. The problem with the conventional systems is the high cost and an inflexible fixed structure at the port which prevents other activities. Material losses at transfer points, cleanup costs and in some cases contamination of the grain by unwanted rodents are further problems in the logistics process.



Figure 2 – Typical Silo set up at the facility



Figure 3 – Bulk Conveyor system at a port

Argentinean Terminal discover the CBH system

After discovering CBH system the Argentinean terminal is leading the way in exporting grain in the region. The terminal had a host of customers banging on their door looking for help to export their grain following a bumper harvest, but the terminal did not have silos or bulk loaders at their facility. Not to turn the customers away, the innovative management wanted a simple operation with minimal investment by using much of their current equipment and infrastructure. A large capital expenditure and the setup time for new warehousing and equipment was not a viable option. Whilst researching a number of best possible solutions, the team discovered a system called “**Containerized Bulk Handling**”.



What is Containerized Bulk Handling?

Containerized Bulk Handling (CBH) is a complete system that includes the containerization of bulk products such as grain at the inland depots or farms, before moving it directly to the port's yard. The loading process is completed by using a specialized rotating spreader called a revolver manufactured by RAM Spreaders, and the purpose built containers manufactured specifically for handling food grade products.

The Revolution - How the new system works



Figure 4 – standard port equipment loading container



Figure 5 – Sealed container stored at port

The CBH system is simple and involves loading the agri-bulk at the farm or storage location into specialized 20' high cube containers with a payload capacity of 27 tons. The containers are sealed with lids to protect the product from rain or contamination and eliminate potential dust and spillage.

“The container becomes the storage and transport system removing the need for Silos”



Figure 6 & 7 – Trucks loaded with sealed containers containing grain head to the Port

The sealed containers are then transported to the terminal's yard and stored ready for loading. The containers replace the need for expensive silos.

Once the vessel is alongside, the containers are handled as they would in a conventional container operation and delivered to the quay side by truck.





Loading is performed with the ship's on-board Cranes or Mobile Harbour Cranes, fitted with a Revolver. The Revolver locks onto the container, lifts it from the quay side and then lowers it into the hatch of the vessel. The lid is lifted off automatically and the material is tipped into the hatch during the 360 degree rotation.

Environmentally Friendly and Fast



Figure 9 – Revolver unloads the grain by gently rotating the container

As the grain is sealed in the container at the farm and only opened at the bottom of the vessels hatch, there is no material loss or contamination. The revolver process differs from normal bulk loading as it is very gentle and adds very little energy to the material. The revolver lowers the container almost to the bottom of the hatch and tips it gently. The result is a reduction in dust. With less dust in the air, workers can breathe a lot easier.

With the Containerized Bulk Handling process, loading rates can be as high as 25 cycles per hour with 25 tons of grain in a box making the CBH process a faster system. With two cranes up to 1,000 tons can be loaded per hour. The RAM development team is now working on a system to load at twice this rate.

“With two cranes they load at 1,000 tons per hour”



The Container as a Silo and Transport

The most innovative aspect of the new system is the use of the container as a silo and a method of transport. Traditionally grain exporters needed expensive silos costing over 20 million dollars, which prevented a number of ports from exporting grain. With the containers acting as both storage and transport, the containers are sealed directly after filling.



Typical Silo set up

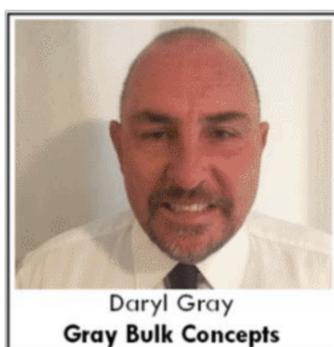


The CBH system with sealed container stored at port

The only way to access the grain or commodity is via the special food grade sampling port fitted within the container. To overcome the high capital set-up costs the containers are leased, reducing the capital that would otherwise be tied up in a silo which would remain empty for long periods throughout the year.

Growing Business Flexibly

To acquire and set-up, a traditional bulk grain operation can take years. In contrast, a containerized bulk operation can take no more than 6 months, allowing a much faster and efficient way to get bulk commodities into the market. Putting in conveyors and bulk storage makes the system dedicated, however this is not the case in Argentina as they can load conventional containers on Monday, grain on Tuesday with the revolver, and back to containers on Wednesday with no clean up required.



Daryl Gray
Gray Bulk Concepts

The CBH system provides opportunities for general & container ports as well as logistics companies to provide an alternative to existing suppliers. International port consultant, **Daryl Gray, Principle at Gray Bulk Concepts** says *"No longer is the bulk terminal the only location for export. CBH gives others the opportunities to get into the game for much lower cost"*

System Mobility

An additional benefit of the Containerized Bulk Handling system is mobility. The CBH system, which includes the RAM Revolver® and containers, can be moved to another terminal if required. The investment is transferrable.



A New Route to Market

The use of container terminals or general purpose terminals gives grain exporters and traders another route to market. Often during peak harvest time, the bulk loaders get congested and their customers cannot export the product when and how they want. By using the flexible CBH system it is now possible to get the grain to market. What started as a small change in Argentina is set to grow into a revolution in grain loading globally, with a new flexible low capital solution to export agri-bulk.

This containerized bulk handling system is already in full operation in South America, Australia, Middle East and Africa mining industry for products such as copper, coal and iron concentrates where throughputs of over 1,000 tons per hour, per crane are achieved. The RAM Revolver® can be designed to operate with any type of port equipment such as reach stackers, ship to shore cranes, mobile cranes and ship's gear cranes.



***The container becomes
the storage and transport system,
removing the need for Silos***

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