

How to Select the Best Grain Cleaning Equipment

Successful grain cleaning begins with asking the right questions.

By Lisa Cleaver

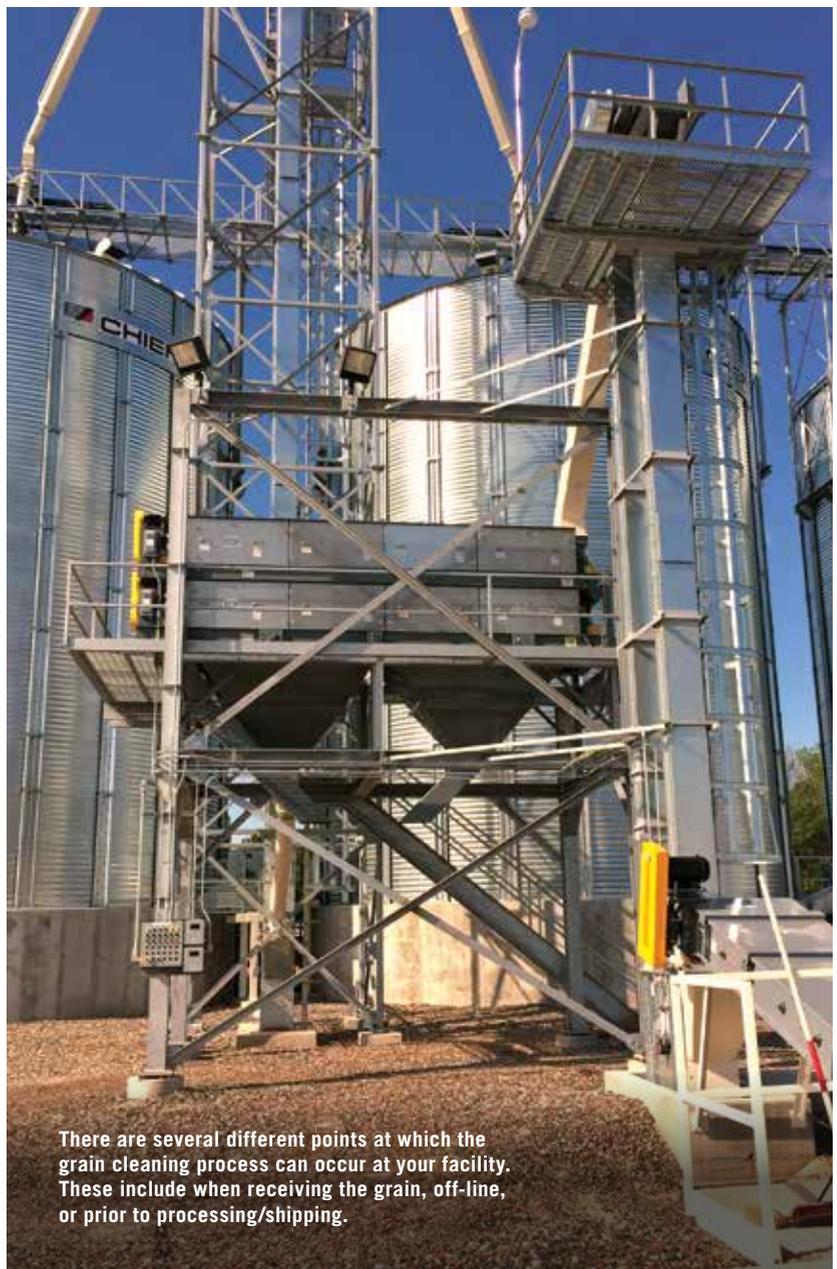
Why should a feed and grain facility clean its grains? The reasons are many. Removing coarse contaminants that could otherwise damage conveying equipment, plug spouting and bin discharges and cause contamination of finished products is one.

“Removing foreign material from grain allows the grain to flow better,” says Tiffany Palmer, sales and marketing director with EBM Mfg., Inc., Norfolk, NE. “Dirty grain attracts insects and can harbor mycotoxins and mold growth.”

Cleaning grain will help facilities remove dust and insect fragments that will result in safer and more sanitary storage of grains. Removing foreign material will also provide a more constant production output level for processors that would otherwise fluctuate with varying cleanliness levels, says Kent Mellen, North American sales manager with BM&M, Surrey, BC, Canada.

“Cleaning grains will also lower dockage levels for shipment of grains to meet customer specifications which results in better value of the shipped product,” Mellen adds.

Lowering dockage levels helps to increase grain quality to reach



There are several different points at which the grain cleaning process can occur at your facility. These include when receiving the grain, off-line, or prior to processing/shipping.

FOCUS ON GRAIN CLEANING

TIPS ON PURCHASING A SCREENER

Knowing your screening goals helps determine which screener will be the best for your facility. Here are some questions to ask yourself and manufacturers before purchasing a screener.

- Is capacity and screening efficiency equally important or is one a higher priority?
- What are your screening goals and how clean does your application require the product to be?
- What kind of support structure does it take to install?
- How does it fit into the overall layout of the location where it is to be installed?

Maintenance creates its own set of questions.

- What is the expected life span of the equipment?
- What is the expected routine maintenance?
- Where are the wear points located and how accessible are they?
- What are the recommended spare parts to keep on hand?
- How easy or difficult is it to change out a screen?

Remember to consult with your industry partners who are most familiar with the equipment you're considering.

— INFORMATION PROVIDED BY EBM MFG., INC.

higher market grades, says Palmer. "If you clean the grain, you can sell at a higher premium," she says.

Other benefits of cleaning grain

include the ability to aerate with less restriction of the air passing through the grain, which results in less amperage used by the aera-

tion fans with fewer hot spots.

"Our customers report they fumigate less as well," says Kevin Schultze, grain equipment sales



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Best time to clean

There are several different points at which the grain cleaning process can occur at your facility. These include when receiving the grain, off-line, or prior to processing/shipping. There are benefits to each to consider.

At **receiving** provides the most benefit as it allows for storage of clean material, which stores better and is easier to handle. The rate that a lot of grain is received at, however, results in the need for larger equipment so the investment tends to be higher.

Clarence Heckert, vice president, Agribusiness Sales Canada, with Carter Day Industries Canada Ltd., Winnipeg, MB, Canada, says precleaning grains at this point of the process is becoming more popular with facilities.

“At this point, you can rid the grain of a lot material such as pods, sticks, rocks, mud, weed seeds and small bits of foreign debris that will add weight but no value,” he says.

Off-line requires dirty grain to be received and stored which is then cleaned and re-stored as required. “Off-line cleaners can be sized smaller than receiving cleaners, so their cost can be lower although most machines are still pretty good size for larger grain shipping elevators,” says Mellen with BM&M.

Prior to processing is a position that is used to minimize the initial cost of the cleaner as typical process rates are much lower than receiving rates. However, this position requires the handling and storage of uncleaned material.

Some facilities may screen more than once. For example, they may choose to screen at receiving and prior to processing or before bagging.

Cleaning equipment options

There are myriad types of equipment to clean grain. While every feed and grain facility is different and will require customized solutions, there are some general styles of grain cleaning equipment.

- **Drum scalpers** with rotating cylinders that are typically used to remove large coarse materials.
- **Drum cleaners** with rotating cylinders that scalp and sift at high capacity.
- **Screeners** with gyratory motion that can scalp and sift.
- **Gravity cleaners** use gravity

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to convey grain through the cleaner.

- **Combination cleaners** scalp, screen and aspirate the grain.

Grain can be cleaned by width, length, density and even color.

- **Width:** gravity, rotary, vibratory and oscillating screeners
- **Length:** length graders and disc cylinder cleaners
- **Density:** aspirators and gravity tables
- **Color:** color sorter

When describing physical characteristics of screeners, there are drum-style rotary, trommel-style rotary, vibratory (in-line), gyrating and gravity.

■ **“Cleaning grains will also lower dockage levels for shipment of grains to meet customer specifications which results in better value of the shipped product.”** ■

— **KENT MELLEN**, North American sales manager, BM&M

Aspirators can be added to a screener to remove lighter material from grain.

With screeners, there are different types for different results, says Palmer. There are rough screeners, intermediary screeners and precision screeners. Each type of screener produces a different result.

“Some facilities may use a combination of screeners to reach their end goal,” says Palmer. “Color sorters are an example of a precision

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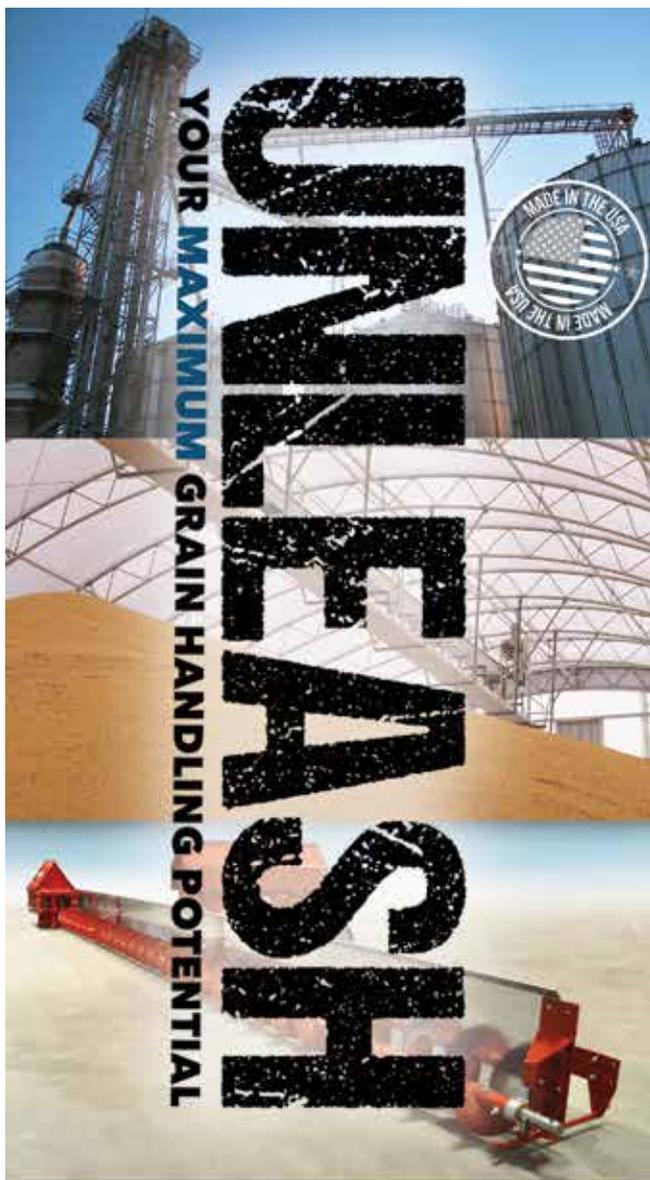


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Combination cleaners can scalp, screen and aspirate in one machine like this Carter Day unit.

“screener that can be used to remove discolored grains by color. Indent screeners separate grains by length.”

Aspirators are often used to remove lightweight material that can't be separated out by size or length. “For example, bee's wings – tiny bits of chaff from the kernel – can only be removed by air,” says Palmer.

Knowledge is power

When selecting grain cleaning equipment for your facility there are several factors to consider. First, what are your expectations and what kind of results do you want from your equipment?

Capacity requirements for the grain cleaner as well as the conveying equipment that feeds the cleaner and takes the cleaned grain away for load-out or to storage needs to be sized correctly, says Schultze. “The last thing you need is a bottleneck,” he says.

Efficiency and capacity are important, and one affects the other.

“You don't want any surprises,” says Palmer. “Educate



When selecting a grain cleaning unit for your facility, educate yourself and know your expectations before buying.

yourself and you'll be able to avoid disappointment."

Don't just focus on purchase price, says Mellen.

"Presuming performance is capable of being met, long-term cost of ownership should always be considered near the top of the list when comparing features among the various options available," he says.

"While the initial outlay for the equipment is a major consideration, how much maintenance and replacement parts are required over the life of the machine will ultimately have a greater financial impact than the initial cost," he continues.

■ "Educate yourself and you'll be able to avoid disappointment." ■

— TIFFANY PALMER, sales and marketing director, EBM Mfg., Inc.

Durability, longevity and quality of workmanship should be factored in.

"How long a machine lasts depends on the commodity it's cleaning," says Heckert. "But typically, if it's a lower maintenance machine, there's less rebuild and overhaul time needed."

Durability translates into reliability and keeps long-term cost of ownership to a minimum.

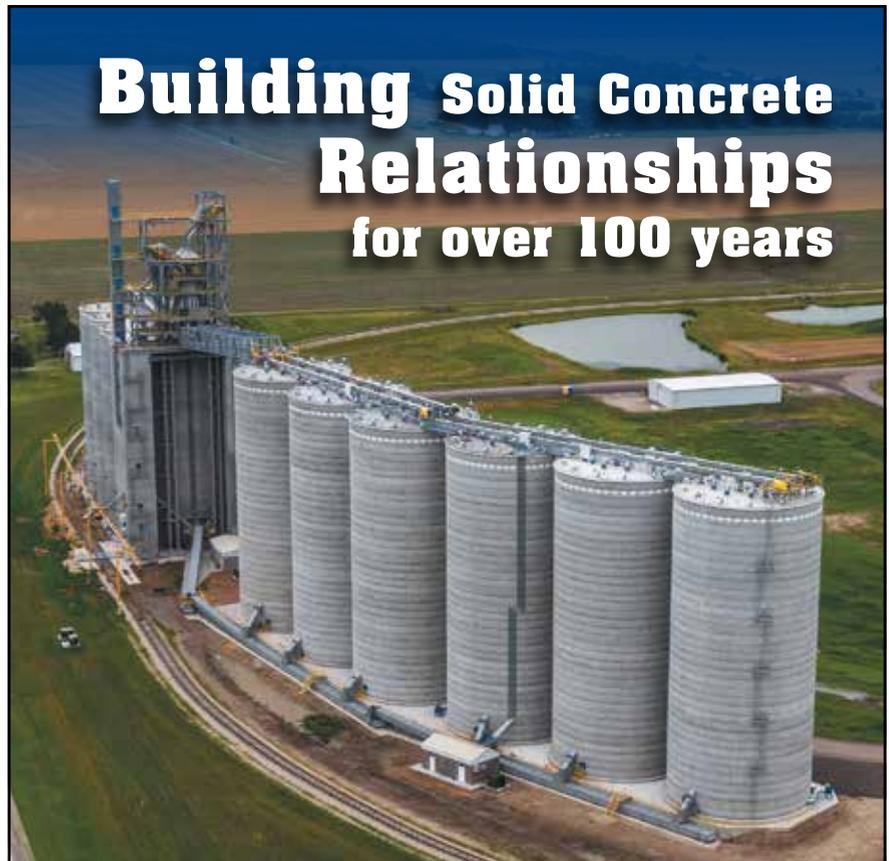
"Reviewing industry references and understanding what are common replacement parts and their cost are a couple of tools that help assess each manufacturer under consideration," says Mellen.

Another selection criteria to consider is whether you need a stationary or portable unit. If a company has multiple locations,

a portable cleaner can be used at each location as needed.

Finally, partner with your industry suppliers and know what kind of support you have both locally and from the manufacturer. Great customer service and technical support is invaluable says Schultze.

"Parts availability is an important consideration," he says. "Does the manufacturer stock parts or can you obtain them from your local parts store? This is important when your machine is broken down and production is being lost — how fast can you get those parts?"



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Machines with fewer moving parts translate into lower-maintenance machines, says Schultze.

Best maintenance practices

Grain cleaning machines can last decades if taken care of properly. In order to have equipment that lasts this long, best maintenance practices are key.

“How you monitor and maintain your machines will determine how long they last,” says Heckert. “You have to understand your equipment so you know when it’s not functioning properly.”

Following recommended manufacturer maintenance is a must. Regular inspections will ensure long-term performance and minimal parts expense. If machines are not regularly inspected then downtime is more likely.



Portable units can be moved and used at more than one facility.

“An equipment log should be considered that details what parts are replaced over time so that trends leading to potential major

failures can be better prevented,” says Mellen. “If the parts replacement frequency increases, the manufacturer should be contacted to review what is happening and provide suggestions for how to reverse that trend.”

Creating a routine preventive maintenance schedule for your grain cleaning equipment is a proactive way to help eliminate maintenance problems. “If you have an operation running 24/7, downtime is lost production which is also lost money,” says Palmer.

Finally, give yourself time to review multiple machines and find which makes the most sense for your business.

Mellen concludes, “Since this equipment is often intended to be in production for 20 years or more, lower cost of ownership over the lifetime of the machine should be factored accordingly.” ■

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