



Managing the milling process

Learning to manage people, processes and profits will help milling companies maximize performance

by Mark Fowler

Throughout my career, I have had the opportunity to work with several quality companies operating flour, feed and maize mills on nearly every continent. My experience in working with these companies has allowed me to observe various styles and systems of managing the milling process. As I continue to teach and study the milling process at Kansas State University, I categorize management practices into three areas I refer to as the “Three P’s of Management: People, Process and Profits.” Structuring the management of the milling operation to measure and maximize the performance of these three critical parts of the operation is key to building a successful organization.

MANAGING PEOPLE

The first step to successful management is learning to work with people. Effective communication is vital to effective per-

sonnel management. To be an effective communicator, you must first acknowledge that communication is a two-way activity. It is as important to listen and understand what your employees and colleagues are communicating to you as it is for you to effectively communicate your message to them.

One lesson I have learned with regard to written communication is keep it short and concise. For a mill operator, the primary purpose of the production report is to communicate information regarding the condition of the mill and mill production to the other departments responsible for maintenance, quality control, packaging, shipping and sales. The manager of the milling facility should use the mill production report as an investigative tool and be able to identify who, what, when, where and why for all the data included in the report.

Goal setting is also an extremely important part of managing the people working as part of the milling process. Each

WE ARE ALWAYS LOOKING FOR NEW AGENTS.

LAW
masters
in the art
of drying

MAROT
Quality
means
MAROT

www.cfcai.com
export@groupecfc.fr

Groupe CFCE

PROTECT YOUR STORED ASSETS



With Integris Advanced Grain Management

Maximize your profitability by optimizing grain quality and moisture content. Integris Advanced Grain Management solutions let you proactively monitor and control grain condition directly from your PC. Integris helps you precisely manage grain quality so you can deliver grain that meets optimum market specifications: avoid profit losses due to shrink & spoilage; reduce energy costs; increase drier throughput.

Your grain is more than a commodity—it's your most valuable asset. Integris market-enabling technology gives you the freedom to confidently store grain longer so you can take advantage of peak market conditions. Turn your storage into a profit center by investing in an Integris Advanced Grain Management solution today.



Canada/International Inquiries
Phone: 403-219-3177 ext. 229
Email: sales@opistormax.com
Web: www.opisystems.com



USA Inquiries
Phone: 877-653-8350 ext. 1
Email: info@integrisusa.com
Web: www.integrisusa.com

For more information, see Page 82.

MILLING OPERATIONS

individual in the mill plays an important role working toward the success of the company.

Whether the task is mill sanitation to maintain a safe environment to produce food and pass periodic inspections or the sales department maintaining customer accounts to keep the mill running, setting goals is an effective way to communicate performance expectations for personnel. When setting goals, I prefer the SMART goal method. Performance goals for personnel using this method should be:

- Specific;
- Measurable;
- Attainable;
- Realistic; and
- Timely.

Using this method to define goals makes the job of reviewing personnel performance easier, less subjective and more productive as a coaching oppor-

tunity. There are many books and web-based resources available to provide additional guidance when writing and developing SMART effective goals with your personnel.

MANAGING PROCESSES

Managing the process flow may be easier than managing people, but to be effective you need to know what to measure and how to track progress. Measuring mill yield or extraction is a good example of a crucial measure of mill performance that is often misinterpreted. We often discuss mill yields and extraction rates without knowing exactly what we are measuring and whose job performance it may represent. There are many ways to measure and report milling yield.

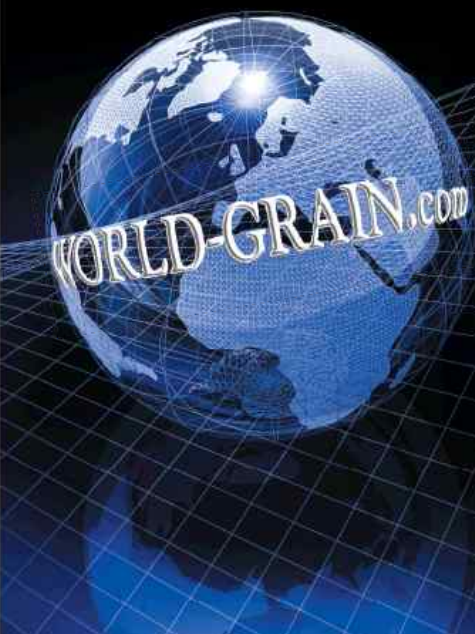
First, let's define yield and extraction. Yield, sometimes referred to as bushel yield, is a measure of the number of

bushels of wheat to produce one hundredweight (cwt) of flour. This measure is most widely used in the United States. Extraction is simply the amount of flour produced from a measure of wheat reported as a percentage. Extraction is most often used in countries that use the metric system instead of bushels when accounting for their wheat.

For example, if a mill processed 10,000 bushels of wheat and produced 450,000 pounds of flour, how would you report its production efficiency?

If you were to calculate bushel yield, it would be 2.22, since 450,000 pounds equals 4,500 cwt and 10,000 bushels divided by 4,500 cwt equal 2.22. The lower the bushel yield the more efficient the milling process. Extraction is simply calculating the percentage of flour produced. For instance, 10,000 bushels equals 600,000 pounds of wheat (at 60 pounds per bushel) and 450,000 pounds

You'll find these valuable resources:



- Free e-mail newsletter with the latest news.
- Comprehensive directory of products, services and supplier contact information.
- World Grain magazine on-line and article archives.
- Daily industry news and up-to-the-minute markets data.

Check out **WORLD-GRAIN.com**

MILLING OPERATIONS

of flour divided by 600,000 pounds of wheat represents a 75% extraction.

The difference between yield and extraction is simple enough, but what about the many different ways to measure the amount of wheat processed and/or flour consumed?

Dry, dirty extraction is measuring the amount of flour produced from a measured amount of wheat purchased before it is cleaned and tempered. First break extraction, or B1 extraction, measures the percent of flour produced from the wheat delivered to the milling system after it has been cleaned and tempered. Both of these extractions are important to understand performance of the milling process, but they measure different variables.

Dry, dirty extraction reflects the quality and cleanliness of the wheat purchased and delivered to the mill. For example, a lower initial wheat moisture would help to improve dry, dirty extraction as more water is added to the wheat during the conditioning process. However a larger amount of impurities which will be removed in the cleaning system before the wheat is tempered and milled will have a negative impact on the extraction rate.

First break, or B1, extraction is a more pure measure of the performance of the milling process with fewer wheat quality variables impacting the results. B1 extraction measures the percent of flour produced compared to the amount of wheat delivered to the B1 roll in the mill. Consistency of the wheat moisture does have a definite impact to this measure, but in theory this is a truer measure of milling performance than dry, dirty extraction. The moisture of the wheat



Mark Fowler, left, discusses the milling process during a short course at Kansas State University. Photos courtesy of the International Grains Program.

to B1 is consistent and the non-millable impurities have been removed.

MANAGING PROFITS

There are many other measures that should be considered when evaluating mill performance, including the impact of moisture gain or loss, shrinkage due to packing weights and contamination in the mill, and off-grade flour that must be blended or disposed of into the millfeed stream if it cannot be used as flour.

Profitability in the flour milling business is highly dependent on selecting and sourcing the right wheat to best meet the needs of our customers at the best value. Simply stated, there are two ways to increase profitability: increase sales margins or decrease the cost of production. It is necessary to try and address each of these opportunities to maximize profits.

The ability to differentiate your prod-

ucts from the competition is important in the marketing of them to customers to provide increased value and increased sales margins. Whether you're blending similar classes of wheat with different protein levels or blending dissimilar classes of wheat for unique end-product characteristics, both are strategies to develop distinctive products from a rather common raw material.

Soft wheat, spring wheat and hard winter wheat grown in the United States all have their own quality characteristics, as do the many different classes and origins of wheat grown around the world that can be blended to create unique products, providing more value for both the miller and his customer. It's important to maintain an inventory of wheat from various classes to allow the miller flexibility to produce the types and quality of flour available in the market.

Lowering the cost of production by

Enzymes | Oxidizing Agents | Bromate Replacer | Vitamin Premixes | Vital Wheat
Gluten | Raw Materials for Baking | Baking Premixes | Laboratory Equipment

www.flour-improver.de

Mühlencemie | Kurt-Fischer-Straße 55 | D-22926 Ahrensburg, Germany | Tel.: + 49 (0) 41 02 / 202-001



For more information, see Page 82.

WORLD GRAIN.

Attention Qualified Readers!

Validate your FREE
subscription to *World Grain*.

It's easy to register by
phone, email or log on to
our website. You can then
be certain to be on top of all
the important developments
and information featured in
upcoming issues.

Call:
1-816-756-1000
Email:
jamone@sosland.com
Log on:
www.world-grain.com

Notice: If this is not
your copy of
World Grain, don't
wait for the next issue
to eventually reach your
desk — call today
to see if you qualify for
your own copy.

*All-Digital delivery
— now available!*

56

MILLING OPERATIONS



Students learn about managing people, processes and profits during the IAOM/KSU milling short courses at Kansas State University.

blending classes of wheat with different quality characteristics is most likely the best option to get the best value or “least-cost” mix of wheat to meet your needs. This involves blending wheat to meet the minimum quality requirements of the customers at the least possible wheat cost. This frequently means blending the maximum amount of low-cost wheat into a higher valued mix or blending a minimal amount of high-cost wheat into a low-cost mix. With regard to both blending options, the question must be asked, “Does the least-cost option deliver the best value to your customer?”

Blending for minimum cost without considering the quality of the finished product delivered may risk the consistency of the flour delivered over time. Changing the types of wheat used in the blend may change the functional properties of the flour. When deciding what wheat to use in the mill blend, it is important to not only deliver a consistent quality of flour day to day but to consider the availability of different wheat options throughout the year.

The decision of what to blend is difficult, but deciding when and how to blend products can be even more com-

plicated. Is it better to blend the various wheat choices before it is milled, or is it preferred to mill the different wheat choices separately and blend the various flour types? The key to answering this question is the evaluation of the capability of each milling facility to discover which strategy can be delivered consistently and what capital requirements would be necessary to upgrade for the different strategies and the additional cost of production for the different blending alternatives.

People, Process and Profits. Each of these three key parts of the business is vital for a company to maximize its performance. Learning how to manage each of these areas can lead to greater success of your milling business. Understanding the importance of evaluating the impact of each of these key areas may be the difference between growing your business and just trying to stay profitable. **WG**

Mark Fowler is the associate director of the Kansas State University Department of Grain Science and Industry's International Grains Program. He can be reached at mfowler@ksu.edu.

We want to hear from you — Send comments and inquiries to worldgrain@sosland.com. For reprints of WG articles, e-mail reprints@sosland.com.

March 2010 / *World Grain* / www.World-Grain.com