Hertzler Systems Inc.®
Turning Data into Knowledge

Ten tips for building a real-time weight control system –

How to make a user-friendly system that gets the data you need to reduce overpack and reduce material costs

Introduction

Does this sound familiar?

> *"Our customers won't let us touch our prices, but our material costs are going through the roof. We're getting sqeezed!"*

If you're reading this white paper no one needs to tell you why building a real-time weight control system is important. You already know that over pack or giveaway can be a huge drain on your company's profits. You also know that it has been getting worse and worse because of pressures on both sides of the balance sheet. And you know that giving the operator real-time feedback about overpack is critical if ever hope to get overpack under control – much less if you want to reduce it.

You probably also know (maybe unconsciously) that building a solid real-time system has other benefits. Here are a few key benefits:

- Operator involvement and confidence soars when they have immediate feedback on their work.
- Trust in data – and indeed the quality of the data itself - goes up when processes for obtaining and calculating critical performance indicators are "mistake-proofed".
- Administrative costs go down when leaders pay attention to integration of disparate systems.

This white paper describes the key components of a real-time weight control system.

Tip 1: Minimize the number and complexity of steps the operator has to do.

There is an old saying: *"If it is hard to do, it won't get done."* This certainly applies to something as un-glamorous as capturing fill data. It seems obvious, but make sure that the tools and processes you use to collect data are fast and easy to use. This is especially important in the early stages of a data collection program because until your staff sees the value of this data, they may find it easy to 'let it slide'.

You don't have to be an efficiency guru to know that collecting data doesn't add value. And even if your company places a high priority on data collection in an effort to be data driven, that high priority will get undermined if you don't streamline the process so that it is very, very simple. And while you're at it, make sure that it is fast.

And don't think for a minute that your people are being subversive or underhanded if they object to a complex, time-consuming process. They know what's important to leadership by the way you empower them to do their jobs. So make their life easy: make data collection fast and painless.

Tip 2: Control the operator's actions as much as possible.

Controlling the operator's actions reduces measurement error. The point of our first tip is to streamline **what** gets done. The second goal is to standardize **how** it gets done. This is a place where identifying and replicating 'Best Practices' really applies. The best scenario is to build a script with computer software so that the computer guides the operator through a step-by-step process. This embeds the activity in a controlled work flow so that there is only one right way to get the job done. If that's not possible, develop a written checklist or procedure, and develop it with input from people who actually have to execute it.

A best-in-class procedure not only helps the operator, it also increases the reliability of the data because you can count on the fact that data means exactly what it is telling you.

Tip 3: Error-proof data collection wherever possible.

Part of controlling the operator's actions is to error-proof their data. Some systems set up reasonable limits. If the operator keys in a value outside of these 'reasonable limits' the system assumes the user may have made an error, and gives him a chance to correct it before committing the data to storage. Wherever possible, make sure these kinds of error-checking are available to prevent transposition of numbers, dropping or misplacing a decimal point, and so forth.

Tip 4: Use the same interface and database for all devices.

Most of us would love the luxury of tossing out all our measurement equipment and buying all new, standardized equipment. Unfortunately that is not realistic; nor is it good stewardship of corporate resources.

When you look behind this desire you may see a couple of critical issues. First is gaining an economy of scale due to interchangeability of parts. While that has some appeal, the cost of replacing or upgrading legacy hardware across the company makes this a hard sell.

Second is the standardization of the measurement process. If we're really going to standardize how the operator takes measurements, don't we need to have standardized equipment? Actually, the software that controls the operator's actions should be able to control a variety of devices, thereby eliminating the need for standardized hardware.

Finally, there is the question of standardized data formats. Doesn't it make sense to use the same equipment so that we can store all the data in the same format? Certainly pooling the data in the same format is critical. You're going to want to use this data to make all kinds of business decisions, and you want to know that you can compare data from across your facility. But that doesn't mean that you need the same devices. What you need is a common database platform. Standardize the database, not the device.

In other words, standardized the interface and the underlying database will provide a faster ROI than standardizing the measurement equipment. Indeed, it will probably extend the life and effectiveness of your legacy measurement systems. If you can afford to standardize the equipment, do so. But if you must choose, standardize the interface and the underlying database first.

Tip 5: Build a system that allows you to mix data types and data sources

By standardizing your system at the database level you get an unexpected benefit: not only can you pool data from the weigh scales, you can also associate it with other types of data. If you standardize the database instead of the device, you can look for correlation between fill weight and other test parameters such as viscosity, acidity, and so forth. Or you can link fill weight to process parameters such as temperature, speeds, and so forth.

If you build a system that can support only one type of data (scale data) you're missing an important opportunity.

Another important angle to consider is capturing product packaging data (through tare weight) at the same time. A good weight control data collection system should be able to manage tare weight regardless of whether you take tare weight with every subgroup, or just once in the life of the product.

Tip 6: Integrate and leverage existing data systems.

Extending the life of your legacy measurement equipment makes good financial sense, if you can build common interfaces to that equipment. But what about your existing business systems? Are there ways you can increase their value? Typically these systems have all kinds of useful production data that could enhance the value of the weight control data. A couple of examples come to mind.

Weight data is much more useful if you can associate it with detailed information about when and where it was taken. These associations make it possible to evaluate which products, lines, fill heads, shifts, operators, materials lots, material suppliers contribute most to the variation in the system, and this knowledge is worth gold if you're trying to reduce overpack. The trick is that the cost (time it takes) to collect and hand-type that information is often prohibitive. However, if you can integrate your weight collection process with your existing business systems you may be able to get that associated information instantaneously, and without increasing your labor costs.

Tip 7: Make data collection 'fool-proof'

Sometimes when management puts renewed focus on meeting the numbers, staff will do their best to tell the boss what they think he or she wants to hear. Sometimes well meaning operators will go so far as keeping a library of five good units that they always weigh to make sure they report only good data.

Of course this is a cultural problem, and it needs a cultural solution. A real-time IT system can reinforce that process because everyone can focus on the event. At the same time, by interfacing directly to a scale, and validating lot numbers to the production schedule, or connecting to in-line check weighters and comparing to scale data, you can make it much harder to game the system. The end result is increased confidence in the data, which leads to better business leadership.

Tip 8: Leverage cost information.

Another integration point that adds tremendous value is linking back material costs. Imagine if you could connect overpack volumes back to material costs. Imagine the impact in a monthly business review when you can report "Last month we gave away $43,221.53 of product" instead of "Last month we had an average overpack of 22g per product"!

Linking weight data to your financial system enables you to calculate give away in dollars and cents for every shift or batch, for every product every day. With this information you're armed to target the most important (financial) problems in the filling process.

Tip 9: Build a system that executes both start of run checks and in-process checks.

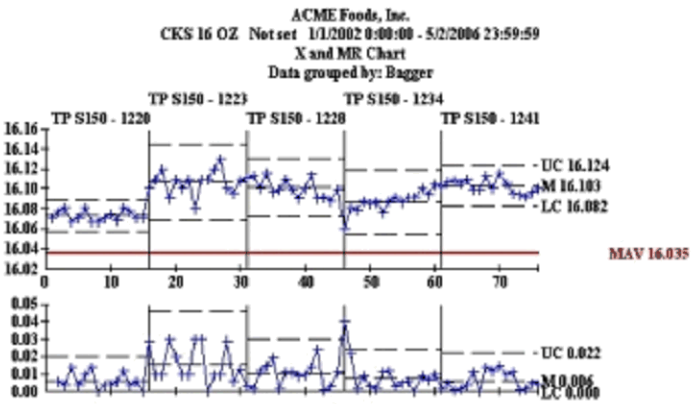
Most filling operations conduct both start of run checks and in-process checks. Any weight control system should make it easy to conduct both of these types of tests and then make it easy to evaluate comparative data for both types of checks.

The processes may not be all that different, but you want to make sure that you can mix the data when it is appropriate, or keep it segregated when needed.

Tip 10: Shift the focus of your real-time system from reactive to proactive.

Your real-time system gives your operators what they need to identify and react to problems as soon as they arise. That's great, but you shouldn't rest with there.

Use simple analytical tools to uncover the root causes of variation within your current system. If you can control or fix these underlying causes, then you have shifted from reactive to proactive mode. This is where you can get the biggest return on your efforts.



Conclusion

Real-time weight control systems pay tremendous dividends if implemented properly. By making the system simple, fast and easy to use you ensure that your staff will actually give you reliable data. And if you integrate the system with all your instruments and existing data systems you can build a rich source of process knowledge. Armed with this knowledge you can systematically reduce overpack and relieve a little of the squeeze between your suppliers and your customers.

About Hertzler Systems

Hertzler Systems provides seamless, accurate data acquisition solutions for your business enterprise. We have been in this business for over 20 years. We have a large and diverse customer base in service, transactional and manufacturing environments, including Consolidated Biscuit Company, McCormick & Company, and Hormel Foods.

Our customers buy software and services from us because it is a good investment. With our assistance they can easily acquire data from any process, analyze that data in real time, and instantly notify process owners of process variation. These capabilities help them reduce costs, cycle time, errors, and defects, and increase profitability and customer satisfaction.

These are our core competencies. We turn data into knowledge.

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