Traditional ERP Systems Don’t Fit Dairy.

The “Retail Consolidation Effect”

Now more than ever, management wants to know what it actually costs to produce their product. It started in other industries and is now beginning to cause a ripple throughout the dairy industry. We refer to this phenomenon as the “retail consolidation effect”, with margins continuing to pressure manufacturers.

To get at the true cost of a dairy item, you eventually have to arrive at the tracking and costing for milk and dairy liquids at the component level (unless you are a cut/wrap operation or wholesale distributor). And, this is where the whole issue of dairy and traditional ERP (Enterprise Resource Planning) systems gets very complicated very fast:

Dairy is a unique industry

Dairy is not a discrete industry, nor is it a process industry like the beverage industry. It is both a batch and process, a hybrid of both industries. If your software vendor describes the product formula as a standard bill of material, it is an indigent choice. Ultimately, it won't fit or give you the information for accurate costing of your products.

Item Codes & Components

Butterfat is not an item number. The most common method of trying to accomplish dairy costing in a traditional ERP system is to set up item numbers for butterfat, protein, etc. Sometimes people end up with Class I butterfat or cream butterfat. But, without giving a separate item number, you can't cost the dairy liquid.

Pricing is complicated

Typically, ERP systems have to know the price of the product at the time it is ordered for the system to be able to cost the item. As we all know, this is not the case for dairy. There are plenty of instances where the product is sold to the customer before the cost of the dairy liquid is known. In a traditional ERP, these are captured as pricing variances that then flow through costing in a variety of mechanisms. Although some are quite sophisticated, this is more work than value at the end of the day.

Dairy is a Unique Industry

We realized a long time ago that there were two pieces to the dairy manufacturing process. The first is what we call the hard side inventory items (plastic caps or packaging). This can be handled by most ERP systems that allow users to update formulas with actual production. The second piece that is unique to dairy and represents 60–85% of the product cost is the dairy liquid side of the equation. Dairy liquids are always different run-to-run and these differences should be captured and used for shrinkage, yield and costing to get a true picture of a plant's efficiency. Dairy liquids are also unique because the actual tests for most runs of dairy liquids are not known at the time of production.

Dairy liquids represent 60-85% of the product cost.

Many traditional ERP systems can't report accurate production information on the component level.

Samples have to be processed by the lab and it is often the next day before the test information is available. Many systems can't function or report accurate production information on the component level. But, if there is a shrinkage problem at the butterfat level, it just shows up in the monthly financials and the accounting department starts to isolate its product loss in spreadsheets that either go nowhere or are difficult to follow for plant personnel.

The DSI system solves these requirements by having separate functions and rules for dealing with dairy liquids and hard side items. We do this behind the scenes to provide a user with a single interface.

Item Codes & Components

Traditional ERP systems try to set up item codes for each component. But, this creates a lot of extra product formulas with countless detail records and forces you to revisit how to create meaningful reports at the sub-assembly level in order to make sense to a user. Next, you have to deal with item substitutions in a method that makes sense. If your product calls for butterfat, what do you do if the product is made with butterfat from cream? In a large sense, these item transfers require personnel time and effort that does not provide value, but is still required for the ERP system to balance and provide any realistic information.

Traditional item numbers are not complex enough for dairy.

In DSI's system, components are tracked as attributes of the dairy liquid and tests instead.

The great work-around in most ERP systems for components is to provide an item code for each component. In DSI's system, the user can report the amount of milk taken to the filler. We track components as attributes of the dairy liquid and the component test(s). This allows plants to track their product shrinkage at both a total pound and component level.

Pricing is Complicated

This is likely the area of the greatest frustration for many dairy plants.

The accounting prepares the financial statements, then invests another three to five business days each month (sometimes more) creating costing for the dairy products because the manufacturing system can't handle or support dairy costing.

Reasons dairy costing isn't supported by most ERPs:

1. The cost of dairy liquids used in production is unknown due to timing of the class announcement.

2. The exact quantities used in a batch or day are only estimates from a formula.

3. A pound of butterfat used for a Class I product is not the same cost as a pound of butterfat in Class III.

The whole purpose of the accounting department is to analyze the information from the manufacturing system, not create it.

Pricing is Complicated

The DSI production system has separate functionality for dairy liquid tracking and costing. The system allows users to update both the dairy liquid quantities and tests for a period of up to 30 days after the production period month-end. This can be done without affecting production or shipping of the product. Furthermore, the costing system allows the user to cost the dairy liquids used on blend, skim/butterfat, or multiple component pricing methods or any combination of these and will compute the FMO class utilization settlement amount for the period, if desired. Costing is done at the component level within the dairy liquid. Therefore, if the butterfat in a run of ice cream mix was made from cream or milk, the system will use the Class II butterfat cost plus a premium dictated by the procurement department to determine what the dairy liquid cost was in that mix. The user can then compare the true cost of the dairy liquid to standard costs determined by the accounting department. This feature can be extremely valuable and powerful, especially in light of the roller coaster prices dairy has experienced in the past few years.

The last piece of costing allows users to cost or value their product based on market prices plus a premium and take into account other cost factors such as storage and transfers. This is predominately useful for cheese manufacturers – particularly those that age their product.

In summary, the ERP system was created to provide better information without adding extra personnel. If you look under the covers of most ERP software, you will see what makes DSI's solution unique.

Dairy Traceability

Traceability in the dairy industry starts at the farm level as milk is picked up and brought to the plant. This is where many traditional ERP systems start to lose their traceability on milk picked up from multiple farms. In most cases, the traditional ERP system will assign truck lot numbers to identify individual loads of milk coming into the plant, and ultimately into a silo. Many clients we’ve visited are still tracking multiple load trucks on spreadsheets or by hand rather than using their current software, creating a difficult to follow and time consuming traceability stream.

Once an individual dairy liquid (milk, skim, cream, etc.) is unloaded into a silo, many traditional ERP systems will either force you to unload an entire silo into production at a given time to keep the traceability intact, or it can’t handle the simultaneous loading and drawing from the silo at the same time. The DSI system solves this problem by using time stamps for individual truck loading or unloading and silo draws to produce a true traceability window in which you’re able to recall based upon supplier ticket or by date and time between CIP windows. This information will follow the dairy liquid through the entire production process to finished product and byproduct, allowing for a full traceability stream throughout the entire plant and anything potentially affected by a recall.

DSI captures the time stamps from loading or unloading automatically from the receiving bay transactions, obtaining reliable information to know when a pump starts or stops. Furthermore, as technology improves on the floor instruments, many DSI customers now capture and pass along the silo transfer and draw information to DSI to provide true start and stop times.

Component Level Shrink

So often, components are the ugly little details that ERP systems and implementers hate. The fact the components are variable with every draw cause component work-arounds in traditional ERP. Using item codes for Class 2 BFT or Class 3 PRO are common, but it results in 'lost' components in the standardization of the tests for the ERP system to flow data. From a traceability point of view, this is a large gap. Easily tracing components throughout the entire process is the key to accurately recalling dairy liquids in a timely manner. For example, if there was a problem with whey cream at a plant, what would your ERP system recall? At DSI, we provide solutions that track all of the vats that provided the whey cream into a silo and automatically work back to all of the possible vats providing the whey cream. In addition, we can also track the vats and the dairy liquids from those vats all of the way back to the raw silos and the possible manifests. This provides the 'true risk exposure' as required by food safety laws in a quick, responsible method.

For more information:

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