Mass Balance and Traceback Audits

Narrator (00:15):

It's inspection day. The inspector has completed the facility tour, and now you are sitting at the table with your organic records ready for inspection. On-site record review is a legal requirement under the USDA organic regulations. Your inspector is required to conduct two specific tests of your records, a traceback audit and a mass-balance audit.

Narrator (00:42):

These two audits are complementary, but they test your recordkeeping system from completely different angles. Together, they help tell the story of your facility's organic integrity. Let's look at what they are, why they are required, and how to build an audit trail that passes both with ease.

Narrator (01:13):

The traceback audit is a targeted check of your operation's day-to-day audit trail. The regulations require that organic products and ingredients be traceable from the time of purchase through production, to final sale or transport. A traceback audit starts at the very end of this lifecycle with a lot of finished products sold or ready to ship and works backward to verify every organic ingredient traces to the last certified operation in the supply chain.

Amanda James-Martin (01:46):

The traceback exercise is really just kind of an audit trail exercise to track an item from sales all the way back to receiving, and then making sure that you have all the records that are needed in between those two places to prove that that product is organic.

Narrator (02:01):

For any traceback to succeed, your records must span three distinct document categories: outgoing records, internal records, and incoming records. These documents must be linked through shared unique identifiers, such as lot numbers, PO numbers, or batch codes. If there is a gap where an identifier changes without a bridging document showing both the old and new numbers, the traceback chain breaks and the audit fails.

Chad Olson (02:34):

All the numbers match in three places, really, the importers numbers, the green coffee storage warehouse numbers, and our numbers in our purchasing orders all match. Then we know that that coffee is true and correct and actually organic, so.

Narrator (02:57):

While the traceback tests your traceability, the mass-balance audit tests your math. The mass-balance is designed to prevent a specific type of fraud, an operation selling more certified organic product

than they could have possibly produced from the organic ingredients they purchased. It reconciles the quantities of organic ingredients received, used, stored, and sold over a defined audit period.

Tracey Vanfield (03:25):

What they wanted to look at was all of our raw materials, what did we use, what did we use it in, what formula did we create it in, what products were made, where those products were distributed, and did we have anything remaining in inventory?

Narrator (03:39):

A comprehensive mass-balance covers three separate calculations. First, the ingredient mass-balance, which checks if your starting inventory plus ingredient purchases can support the amount of ingredient used in your finished products. Second, the ingredient content comparison, which verifies that the actual amount of ingredients you used aligns with your approved product recipe. And third, the finished product mass-balance, which compares the amount of finished goods sold against what you produced and stored.

Narrator (04:16):

The formula for a mass-balance is A plus B minus D equals C. A is your starting physical inventory count. B is all incoming product or purchases received during the audit period. D is your ending physical inventory count. And C is your calculated outgoing product, the amount of ingredient or product that should have left your inventory. A and D must come from physical inventory counts that are dated in your records, not calculated estimates. And C must account for everything that left inventory, including production waste, shrinkage and quality retention samples. If you don't document waste or samples, the math won't balance, leaving an unexplained discrepancy that will flag a concern for your inspector.

Narrator (05:25):

Let's bring these concepts to life by walking through both audits at Rocky Ridge Tea Blends. They produce a certified organic, Organic Calm Blend tea, blending organic chamomile, peppermint, and lemon balm into packaged retail containers. During the annual inspection, the inspector pulls a random lot of tea from a sales invoice and records the finished product lot number. Let's start the traceback audit.

Narrator (05:53):

Step one, outgoing documents. You pull the outgoing sales invoice and the shipping bill of lading. Both clearly list 72 cartons of Organic Calm Blend with identical lot numbers, shipped to Mountain Foods Co-op. The outgoing document is complete and the lot number matches.

Narrator (06:15):

Step two, internal production records. Using that lot number, you pull up the batch record. This record is the bridge. It lists the exact raw ingredient receiving lot numbers used for this batch. You open your

receiving log. For the selected lot of chamomile, the log has recorded both your in-house lot number and the supplier's lot number. This entry bridges your internal lot to the supplier shipment.

Narrator (06:46):

Step three, incoming documents and verification. For the chamomile, you pull the supplier invoice from White Sage Farm. It contains a matching chamomile lot number received on February 28th. Finally, you verify their organic certificate issued by Certifiers R Us. Chamomile is listed as certified. The traceback is complete and successful.

Narrator (07:13):

Now the inspector selects the chamomile ingredient for a mass-balance audit for Q1, January 1st through March 31st. We gather the physical inventory logs and apply our formula. A plus B minus D equals C. A, beginning inventory. You pull the physical count log from January 1st. It shows 50 pounds on hand. For B, purchases received, you pull receiving logs. You received one shipment of 200 pounds from White Sage Farm. And for D, ending inventory, the physical inventory count log shows 70 pounds remaining on March 31st.

Narrator (07:56):

Applying the formula, 50 plus 200 minus 70 equals 180 pounds. This is C, the total amount of chamomile that you should have left in inventory. Next, you check your waste log. Five pounds of chamomile was discarded due to a damaged bag on January 18th. This leaves 175 pounds of chamomile actually available for production. Now we perform the ingredient content comparison. The approved recipe for Organic Calm Blend calls for 0.25 pounds of chamomile per retail carton. Production records show that you manufactured 700 cartons during Q1. 700 cartons multiplied by 0.25 pounds equals 175 pounds. The ingredient content matches perfectly.

Narrator (08:53):

Finally, we run a finished product mass-balance on the cartons of Organic Calm Blend tea. A, beginning inventory. On January 1st, the inventory log shows 10 cartons on hand. B, produced. Production records show 700 cartons manufactured in Q1. D, ending inventory. The March 31st inventory log shows 38 cartons in storage. Now we calculate C, outgoing product. 10 plus 700 minus 38 equals 672 cartons. This calculated amount of product must then be cross-checked against an independent data source. You pull your sales reports. Outgoing invoices show exactly 672 cartons were shipped during Q1. Expected sales match actual sales. The mass-balance closes cleanly, demonstrating that you had enough organic ingredients to produce the finished organic products that you sold.

Narrator (10:08):

Gaps in these audits can occur easily, even in well-run facilities. In tracebacks, the receiving log is often where the chain lives or dies. A common failure is assigning an internal lot number at receiving but failing to record the supplier's lot number in the same document. To an inspector, this undocumented transition breaks the traceback immediately. Gaps can also occur when staff accustomed to

nonorganic operations handle bulk receiving. For example, at a split dairy facility, uncertified haulers might unload organic milk into whatever bulk tank is available without logging which delivery lot went into which tank. While a mass-balance of total milk in versus cheese out may balance, the traceback audit fails because there is no link connecting a specific block of cheese to a specific farm's delivery.

Narrator (11:04):

What happens if the traceback or mass-balance fails? The inspector is prohibited from telling you how to fix your system. They will simply document the gap and report it to your certifier, which can result in the certifier requiring you to fix the gap in your records in order to maintain certification or even issuing you a notice of noncompliance.

Nate Powell-Palm (11:26):

The inspector in no way will be able to tell you how to fix them. It is your system, and it's completely on you to fix it, but the issue of concern, identifying gaps in your traceability in your paper chain are going to be, I think really helpful to fixing and improving your system.

Narrator (11:44):

The absolute best way to catch these gaps before an inspector does is to run regular internal mock audits. Pick a high risk organic ingredient once a month or a quarter, define a period, gather your records and test if the lot numbers carry and the quantities balance.

Amanda James-Martin (12:02):

I ended up kind of just making like a narrative template. You know, even if I don't give that document to the inspector, although a lot of times I do, it does give me a guide when I'm talking through those steps and then also just make sure that I'm not missing any of those steps along the way too. And it's been a good training document as well as we've had new people join the compliance team too.

Narrator (12:23):

Proving organic integrity doesn't require a master's degree in accounting or a million-dollar software budget. It simply requires consistent, real-time recordkeeping habits. Entering receiving data the day it arrives, logging batch weights on the floor and recording every quality sample ensures that when your inspector arrives, you're ready.

Genevieve Albers (12:46):

You know, the north star for any organic operation trying to create a meaningful system is standardization, documentation and traceability. So as long as you're consistent and accurate and complete, I think you're in business as long as it's getting done.

Nate Powell-Palm (13:04):

Folks who are taking the feedback from the inspection process really seriously, and implementing changes that address the concerns raised by the inspector, go through maybe one or two inspections before they are just free sailing. Once you've got your system down, it should run on autopilot after probably two inspections.

Narrator (13:25):

Keeping a clear traceable audit trail is how you defend the organic promise, protect your brand, build trust with your buyers, and keep your organic certification sailing on autopilot.