AdeptGroup

The 7 Ps of a Successful Packaging Trial

AN ADEPT GROUP WHITE PAPER

by Lia Gant

White Paper Overview

7 Steps to Guarantee a Successful and Conclusive Test

PREPARING FOR A TRIAL WITH THE 7 Ps

Understanding the components of a successful packaging trial will help companies reduce damage and associated costs, eliminate packaging related recalls, optimize the distribution cycle and ensure the consumer receives the product in good condition. A successful trial is one that does not lose focus of the goal and ultimately provides a solution, often by process of elimination.

Trial goals can typically include qualifying machinery, packaging components or unit loads.

Examples of trial goals:

*To successfully launch a new product, which requires a change in parts for the cartoner, bagger and case erector, to market.

*To qualify a new pallet load that will eliminate overhang and increase units/position.

Many trials fail because they are not appropriately planned for, which could lead to the following:

- Missing materials
- Lack of alignment
- Lack of support
- Unclear scope

The Stages of Properly Setting Up a Line Trial

IDENTIFYING THE 7 Ps

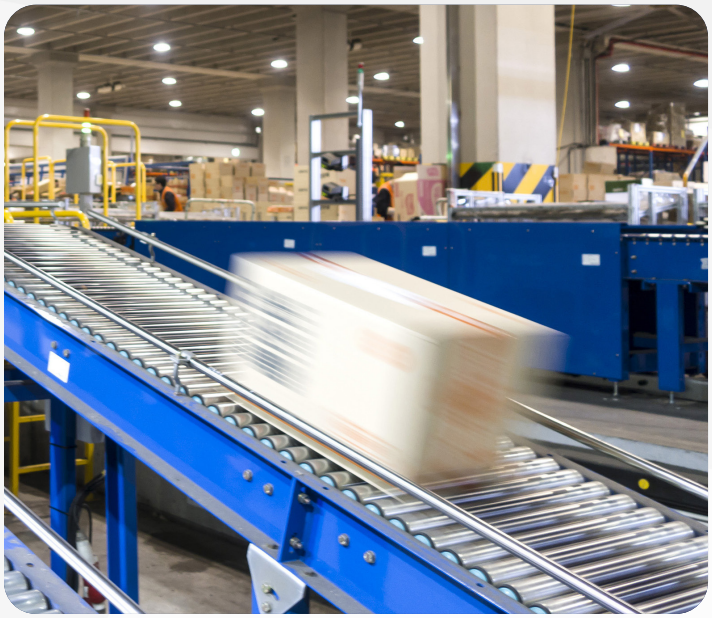
This white paper includes steps to aid in the preparation and the execution of a trial that will guarantee a successful and conclusive test. When preparing for a trial, it is important to identify the 7 Ps: **Purpose, Packaging, Product, Plant, People, Papers and the Plan.**

To illustrate the stages of properly setting up a line trial, this white paper will utilize the example of the trial of a bag and box item transitioning to a preprinted, flow-wrapped bag.

This project will produce 500k in savings from materials and transportation. This project will be referred to as "Project Upgrade."

For our example, the scope of Project Upgrade includes preprinted film with an unwind number of 4 and a newly sized case.

The goal is to remove the current carton and transition from a non-printed film that is placed into a carton, then into a box. Due to removing the carton, the secondary packaging, a new pallet pattern is required for the 48 x40 chep pallet.



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Purpose

Defining & Solving Problems

DETERMINE PROJECT SCOPE AND GOALS

Most packaging trials are triggered by a problem that must be solved. Defining the problem and determining its scope provides the purpose and goals of the packaging trial.

- Is there a new product being commercialized?
- Are there consumer complaints?
- Is there a more sustainable option?
- Are there shelf-life failures?
- Are we seeing damage to the packaging prior to ship or during distribution?

The **purpose** behind Project Upgrade is the lack of a sealing feature on bags, which allowed waffles to fall out in consumers' freezers. The consumer was disposing of the carton to save space in the freezer, leaving the bag as the only container for the product and would often return later to find the waffles outside of the bag. When customers disposed of the box, they also got rid of the brand's nutritional information and branding. Marketing preferred to keep the branding on the packaging throughout the entire life cycle of the product. Packaging the product in a preprinted film with a reclose feature solved these problems and allowed us to use a smaller case and fit more waffles on a pallet.

Clearly defining the **purpose** up front lends clarity to each of the remaining Ps that lead to a successful trial.

Think Outside of the Box

BY CONSIDERING ALL PACKAGING COMPONENTS

When evaluating what to test in a packaging trial, consider the primary, secondary and tertiary packaging. The trial should not be limited to only the materials touching the product. Considering all of the packaging components will allow you to think outside of the box when an issue arises or avoid those issues in the first place.

For example, if there is a burn hole in the bottom of a package, consider issues with the film before assuming the problem is the shrink tunnel temperature.

Check the melting temperature of the film and find out if the item inside transfers heat to the film. Evaluate whether the product needs to be cooled prior to packing. Identify the goal of the trial, but also keep in mind which components should be in scope.

The Packaging Components include all of the materials needed to get the product through the supply chain.

If some components are not in scope, it is still very important to identify them. A lack of identification could cause errors that require rerunning the trial, as well as a significant number of wasted resources.

Packaging Cont.

Make or Break a Trial with Proper Preparation

MAKE OR BREAK YOUR TRIAL

Once the scope of the trial has been determined, it's time for preparation. Preparation -- or lack thereof -- will make or break a trial. If the team can launch or transition to the new packaging the trial is considered a success. If the team is not able to transition because the packaging failed and the cause of failure is identified, the trial is considered conclusive.

Things to consider when reviewing your Packaging components before the run:

- Film - Unwind number, Mil, Specification
- Carton - Board type, Storage Environment, Transit, Creasing
- Case - Glue or tape, Automated or Hand Packed
- Pallet Type - Style, pattern

Other Considerations

For example, if a product isn't achieving the shelf life it's been evaluated to reach, it might be necessary to evaluate a variety of films to determine if it is expiring because of a film barrier issue.

Other considerations might involve understanding the water vapor transmission rate (WVTR) of the current film and successfully running a trial on film with lower WVTR. It is essential to prepare for the trial by understanding the barrier properties of the variables.

Example: The determination of success for the Project Upgrade trial is the effective qualification of a new film on the horizontal flow wrapper that will ultimately increase shelf life.

The Product

Identify Problems on the Line

PROTECT THE PRODUCT

Once the scope of the packaging components is identified and preparation is complete, the next consideration should be the product. The Product is the item we are protecting. The product will be key in identifying problems on the line. Consider the following to help guide your plan when reviewing the product:

Evaluate the product's unique needs to identify potential causes for failure.
For example, On Project Upgrade, the Frozen Waffle has very sharp edges due to batter creating a flange around the waffle. This could cause punctures in the film; it is important to take this into consideration when choosing a mil for the film.

Identify the product, unique product needs and its life cycle.
This will help you determine if your product needs to cool off prior to being packaged, which can help you determine line speeds. It will also establish the need for maintaining certain temperatures to avoid failures that could have been controlled and ultimately compromise the integrity of the packaging.

Can the product be stored prior to the trial or does the product need to be fresh?
This will determine if the product development needs to be on-site or if they can complete their portion prior to the run. If product can be stored prior, it allows fewer support staff to be on-site during the trial.

Will the product be transported on a refrigerated truck or temperature-controlled?
Understanding the transportation piece will determine if you need to include any kind of temperature gauges inside of the trial packaging. A temperature gauge tracks the temperature of the product and can help determine if the packaging has failed because of the temperature of the truck.

Example: The product in Project Upgrade is baked, frozen, then packaged. This means for the trial, if the product development maintains the same formula, the waffles used in the trial can be prepared in advance and placed on the line to be packaged. Unlike biscuits in a can, the temperature of the waffles throughout the distribution process will not affect the packaging.

The Plant

Evaluating the Packaging Plant

UNIQUE CONDITIONS TO CONSIDER

With evaluation of the product complete, we must also evaluate the manufacturing site. It is important to thoroughly review the plant or manufacturing site to evaluate any unique conditions that might impact the packaging. Consider the following when reviewing the plant:

- Is this a co-manufacturer or a plant owned by the company?
- Which plants are currently running the product? The answer to this question will determine whether one trial is sufficient, or several plants need to be run for sufficient qualification.
- Are the warehouse and manufacturing site connected? This question helps determine if additional movement requires evaluation during shipment and distribution testing.
- Do all plants that will run the product have similar equipment, model year and manufacturer? If packaging equipment is different between sites, the trials will likely produce different results.
- Is the packaging process automated or done manually? For a manual process, any changes made will need to account for ergonomic differences and time will be an important part of the evaluation process to ensure that any changes made do not decrease packaging efficiency.

Example: Project Upgrade involved two plants, one with significantly newer equipment. This plant may perform much better than the facility with older equipment. To mitigate the differences and performance of equipment, it is important to have the horizontal flow wrapper manufacturer on site for assistance with the flow wrapper. The manufacturer will determine if we need additional changes or adjustments to the settings to achieve the same results both plants.

People

Identifying the Trial Team

MAKE THE TRIAL PROCESS MORE EFFICIENT

The team involved with the trial is just as significant as the packaging being tested. Understanding who will need to approve the test plan and results makes the trial process more efficient.

For Project Upgrade, plant managers for both sites involved in the trial play an important role in scheduling the trial. Product Development assists with batches and shelf-life studies. Marketing approves many elements of the packaging. Packaging Engineering creates the trial plan and executes the trial. The film supplier understands the physical attributes of the film and must be available to answer questions throughout the trial.

Once you have identified Purpose, Product, Plant and People, the next key consideration is documentation, which is represented by the fifth P, **papers**.

Drive Alignment Between Trial Groups

DOCUMENTATION TO DISCUSS

Included in the trial documentation are the steps that drive alignment between each personnel group and each step of the process.

This document should be discussed when preparing for any form of a trial, including commissioning, first production and exploratory. Each of the departments and manufacturing functions involved in the trial may have their own way of documenting the plan and results, but Packaging needs a thorough and well-defined documentation process to provide cohesion and keep the trial process on track.

It may also be necessary to have a completed design brief, depending on the reason for the trial.

Other important documentation includes:

- Trial Request Forms
- HACCP (Hazard Analysis Critical Control Points)
- Labels/Packaging for Samples

A The Plan

Now that the other 6 Ps have been evaluated, it's time to put together the plan.

The trial plan encompasses all other essential items in the preparation list. Trial plan should start by including a distribution list. This list will include the business functions that should be involved in all pre-trial and post-trial meetings and need to be aligned throughout the process.

Essential Considerations

The plan should outline many of the other essential considerations for the trial, including the purpose, plant location and details about the product such as its weight and all sizes in scope for the trial. The purpose should be stated concisely, but thoroughly cover the goals and what packaging will be evaluated during the trial.

The success criteria may be the most important piece of the document, as it needs to define the duration of the trial and which quality documents will be used as the standard.

Trial Scope

Identifying and documenting the scope is a way to maintain focus when other issues arise. In the Packaging portion, you were able to identify the scope of the trial. List out the materials in scope along with the specification identification number and include the resource code used on the Bill of Materials. Track of each component and note when they arrive at the plant. When communicating delays, include a plan to get back on track.

Setup

The plan should also clarify the requirements for properly setting up packaging machinery, especially when that setup requires additional support from within the company or from external resources. It is important to be as specific as possible and identify which parts of the process are automated and which are manual. When testing new packaging, the plan must communicate whether it is a dimensional or a material change and whether or not a representative from the carton manufacturer should be present. If participation from the packaging manufacturer is required, they should be involved from the beginning to assist with change of parts and drawing approvals.

Identify Problems on the Line

PROTECT THE PRODUCT

The plan should identify the points along manufacturing and packaging process at which data will be collected or monitored. Spelling these points out clearly helps to assign specific responsibilities to the personnel involved in the trial and ensures no unnecessary resources are tied up by the trial.

Sampling Setup

Understand the sampling plan prior to the start of the run because high speed lines will result in high speed sampling. Align the team on specific ISTA or ASTM packaging standards and ensure line operators understand the references for pass/fail criteria. In the operators' meeting make a note of estimated start times and actual shift changes and plan accordingly. Explain in detail exactly how data is to be collected, also have data collection tools printed and ready for completion.

Specify date codes for machinery and timing. These codes will be helpful if a product fails and needs to be pulled from the trial. Knowing which machine it came through –and when– will help narrow down other products that should be pulled and save the trial team from needed to scrap the entire run.

Results

Results are to be documented, not just to share the outcome but in a way that can allow someone to replicate the trial. Many items have multiple locations at which they are manufactured, however, the products should be held to the same standards and tested the same across the globe. Describe in detail how each component performs.

Every company has trials for the following:
- Dealing with consumer complaints
- New product launches
- To find cost savings opportunities

Concluding the trial, and after all the details have been noted and discussed, outline next steps. Next steps can have deadlines following or proceeding the launch--they just have to be identified.

A Conclusion

Understanding the 7 Ps

CRITICAL STEPS TO CREATE TEST SUCCESS

It is very important to understand the 7 Ps prior to beginning your investigative trial. Each of the 7 Ps is critical for the success of your test. Trials are very expensive and require plant time, labor and a team. Preparation will avoid timeline delays by making the best use of time and increase speed to market by reducing delays.

Remember to not only consider all packaging components, but also the product and its life cycle. Acknowledged all plants involved and consider the equipment manufacturing details. Gain alignment from the right people and thoroughly communicate. This is how one can stay focused on the purpose.

Lastly, document the details and distribute the results by identifying progress and next steps in the documentation. This white paper includes steps to aid in the preparation and the execution of a trial for a successful and conclusive test.

- **Purpose**
- **Packaging**
- **Product**
- **Plant**
- **People**
- **Papers**
- **Plan**

Get in touch if you need assistance with your next line trial.

Working with Adept
Preparation and execution of line trials require resources, time and knowledge. Experts at Adept Group are often leveraged to prepare, manage and execute line trials for our clients. This helps them avoid allocating internal resources, derailing current projects, and often improves the speed and quality of the line trials.

Our methodology has been leveraged successfully by many iconic brand owners in the Food and Beverage, CPG, Pharmaceutical and Medical Device industries. If you need assistance with your next line trial, contact us. We're ready to help.