Conducting Effective Production Trials

For Healthy Food & Drink Products

Interreg Atlantic Area
European Regional Development Fund
EUROPEAN UNION
AHFES

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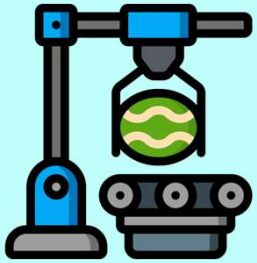
Scope of this Training Module

When **well planned, well controlled** and **well executed,** food and drink production trials can provide vital information which allows you as a manufacturer or brand owner to make **informed decisions** and ensure that your **resources are well utilised.**

They help ensure that your **inputs are optimised** and your **costs are managed,** whilst achieving the **best possible outcomes** for your product to be **manufactured effectively.**

Production Trials are therefore conducted for many reasons, some of which include :

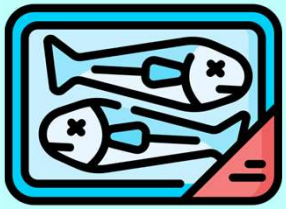
Improving Production Outputs



Upgrading Equipment

Training Staff to Improve Labour Outputs

Enhancing Products



Implementing New Packaging Formats

However, for the purposes of this training module we will be concentrating on production trials which focus on **assessing new products** during the development process.

Getting the Best from this Training Module

You will gain the best outcomes from this training module when it **builds upon** the suggestions of business activities which were made in the previous AHFES training modules.

This module builds upon the previous module
P5-M5 Preparing for Production Trials

It is designed to be used as the next step after you have formulated your trial plans and made all the necessary preparations to allow your trial to proceed.

This will include aspects such as :-

- **What needs to be investigated** at the trial ?
- **What questions** would you like to answer ?
- **What outcomes** you are seeking ?
- **Who needs to be involved** at the trial and **what activities** do they need to undertake ?
- **What volume** should you process and **how many finished products** do you need to produce at the trial to allow all the necessary subsequent assessments to be conducted ?
- **What raw materials and packaging** you will need to achieve this size of trial ?
- **What machinery, equipment, production lines and labour force** will you need to use ?
- **What data and information** do you need to record as the trial progresses ?
- **What documentation and equipment** will you need to monitor & record the trial ?

Counting Down To The Trial

5 Still Needed ?

Things change quickly in the world of product development !
So it's always worth checking that the trial is still needed and the product launch hasn't been cancelled or postponed - for example due to the costings not stacking up, poor consumer feedback or a customer changing their mind !

4 Anything Changed ?

Similarly, circumstances evolve, so it's good to check that the raw materials, packaging, processing flow, food safety considerations and equipment that were planned for the trial haven't altered and that the product formulation and characteristics you are aiming for are clear and agreed by the wider team.

3 Under Investigation ?

Double check that the questions you are setting out to answer and the data, information and records - including photographs – that you need to generate and capture are still relevant and nothing else needs to be included.

2 Everyone Ready ?

Remind everyone involved that the trial is about to happen.
Check that they are still planning to attend or contribute as needed for an effective trial to take place, including any external people such as equipment engineers, suppliers or specialist advisors.

1 Ready to Go ?

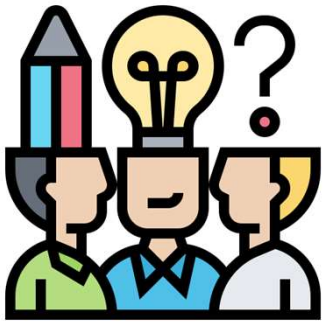
Use your checklists to tick off that all your raw materials, packaging and any other components are on site, risk assessed and approved to enter the food production area and you know where they are stored.
Check any new equipment is on site and all machinery is in position and ready to run.
Ensure your trial monitoring equipment and documents are ready & well organised.

Getting Your Production Trials Right

Scaling up from kitchen or pilot plant stage to a production trial is an **exciting time** in any product's development path.

It is also a time when **businesses are vulnerable** to making business threatening mistakes.

If the trial fails to reveal critical information this could result in future **financial losses, product recalls or an inability to fulfil customer orders** after the product launches.



It is good practice to **draw on as much expertise as you can** and take a **team approach** which helps to ensure that the trial is looked at from a **wider perspective.**

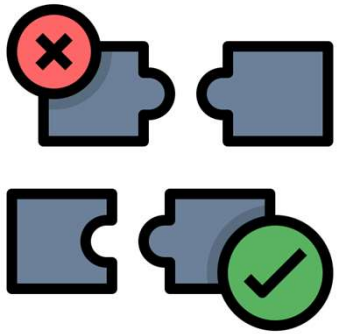
This helps ensure that **costly errors or wrong assumptions** are not made and that **nothing important gets missed** !

Question, Assess and Adapt

The trial team need to need to **know what they are looking for** at the trial and **be alert** to what is being revealed as the trial progresses.

There needs to be **positive attitude** to questioning your previous assumptions and addressing matters that arise.

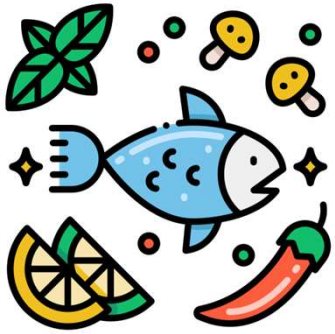
Also a **willingness to reassess, adjust or adapt** in-going assumptions about formulas, ingredients, processing methods, use of labour and machinery and documents such as batching sheets, work instructions or product specifications.



Team members may need to **gather data, take action and assess outcomes**, based on their area of expertise to answer the questions you identified at your planning sessions.

Allocate these responsibilities to the most appropriate member of the team attending the trial. This might include overseeing production processes, assessing food safety and legality, confirming product characteristics and quality standards are met, identifying staff management and training needs or highlighting engineering issues.

Trialling Ingredients



Production trials are **an opportunity to risk assess and scrutinise** each ingredient and how they are processed at each step involved in creating the new product.

Ingredients used in small sample level trials may now be needed in a very **different format**. This might be to ensure they can be handled easily in the manufacturing site, or are readily available in quantities that will be needed or to secure costs which allow the end product to be profitable.

These **new formats may impact how they are handled**.
For example, might you need to automate or provide ways to assist how raw materials are transported during production ? This might be important to ensure safe manual handling and to prevent muscle strain.

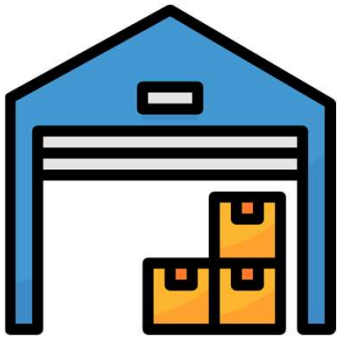
You may also identify a need for **intermediate preparation steps** to convert the ingredient to the size and format that you need to get the best results for your product and improve production efficiencies.

Also consider if the shelf life during which each ingredient remains food safe are compatible with one another – for example you could not add a fresh herb garnish with only 2 days shelf life to a product seeking to have 8 days life.

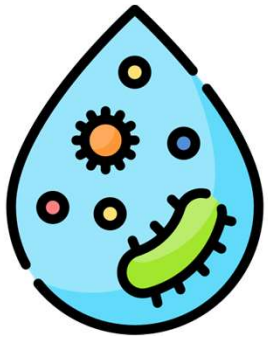
Trialling Ingredients

The **order in which you add ingredients** to create your final recipe may need to be changed to fit with how processing machinery interacts with ingredients as you work towards your desired end product.

The need for raw materials to be stored securely and safely needs to be considered, and will be influenced by the minimum order quantities applicable to each ingredient.



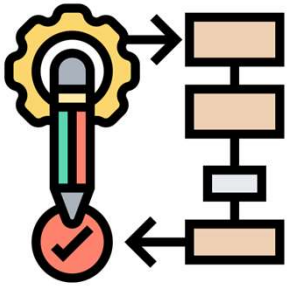
If the quantity of a raw material that is required to produce a batch or daily batches of product is **less than** the amount in the packaging in which it is delivered, then you may potentially be in a situation of needing to store residual quantities of ingredients between production runs.



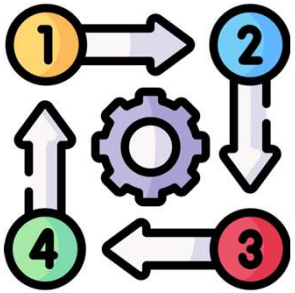
You should use the trial to assess this and agree:
1. how long the residual quantity can be held before use or needing to be disposed of,
2. the storage practices and locations which best protect food safety
3. how to eliminate any risks of the item becoming contaminated by other raw materials or the wider factory environment.

Assessing Processes

The **nature of the product,** and any of the sub-components that are created as the product progresses through the factory, will have an influence on how it interacts with processing steps and equipment.



You will want to **keep the desired final outcome and characteristics in mind** as you review and access whether each processing step is suitable and effective. As the product moves through each manufacturing phase you will want to **understand the impacts of each process step** and document factors which are impacting on aspects such as product quality, production efficiencies, hygiene and clean-down and food safety.

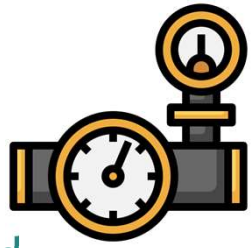


If the product that you plan to introduce is significantly different to existing products, or if you are proposing a new way of handling or processing techniques it can be very helpful to arrange a short meeting or “show and tell” session to show the products and demonstrate the potential ways of working to the staff who will be producing the products.

Not only are you giving them valuable information that will help to ensure your trial will run more smoothly but they may often suggest ways to improve efficiencies – and you are engaging them with the new product at an early stage and showing you value their opinions and expertise.

Assessing Processes

Think about the unique characteristics and process steps applicable to your type of product and decide what **information** it is important for you to **measure and record.**



Some examples are :

flow rates through machinery such as depositors, formers, pumps and pipework, impingement ovens or provers, enrobers or extruders

viscosity or tendency to clump or stick to surfaces or other products

robustness or fragility during handling and percentage of breakages

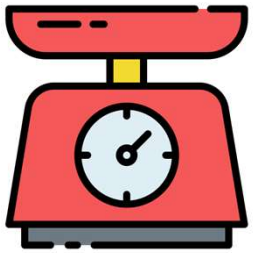
achieving the **desired distribution or blending** of ingredients

the consistency with which products are formed into a desired shape

the dwell time, pressure and temperatures needed to seal packaging

Adjusting Processing Times and Batch Sizes

Processing times of individual production processes may need to be adjusted to reflect the size of the batch being handled.

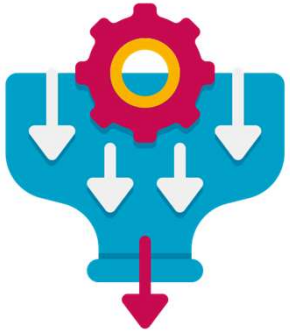


And **batch sizes may need to be adjusted** to ensure that the desired results are achieved in different equipment or processing steps.

Concerns like ensuring an even distribution of ingredients when mixing **need to be balanced** with not causing desirable particulates to breakdown and become over-processed.

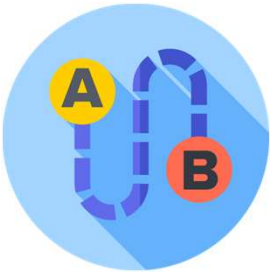
Conversely if your recipe requires ingredients to be fully combined, emulsified or dissolved within a liquid, processing times and shear or agitation will need to be **attuned to the batch size** and the way in which your mixing vessel or other equipment functions.

Reviewing Bottlenecks

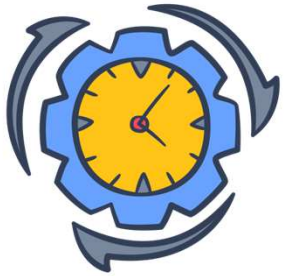


The trial is a good opportunity to assess if your proposed process flow will create any **bottle-necks**.
Bottlenecks can result in products needing to be held as “Work in Progress” stock and this can have implications for food safety and product quality.

By measuring and recording the throughput rates and optimum batch sizes as the product passes through each process step, you can judge if these work together to provide a **consistent flow rate** through the production process. This analysis may be required for a specific machine, at transit or transfer points or for processing steps in which labour is used.

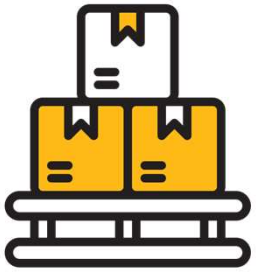


So for example, **if Step A is slower than Step B that follows it**, or **the batch size that is appropriate at Step A is less than could be run in Step B,** then the rate at which product arrives at Step B will be less than could be handled and that machine or process **will not be running at full capacity**.



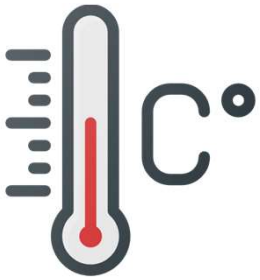
A full line either needs to **run at the pace of the slowest processing step** or **stock needs to be managed through production planning** to reflect these discrepancies to prevent the production line or staff at Step B standing idle or running below capacity.

Food Safe, Efficient Process Flows



Similarly if **Step C has a bigger batch size or throughput rate than Step D** that follows it, more product might be pushed up the line than Step D can cope with.

This could have implications for how much **WIP (work in progress) storage** might be needed.



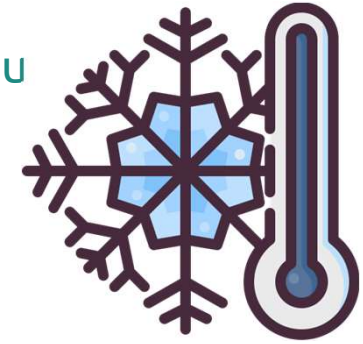
It is especially important for products in which **temperature control is critical** for food safety or when **product quality or structural integrity might be negatively affected.**

You need to carefully **consider the implications** of large quantities of product building up behind a process step, waiting to be processed because it creates a risk of issues which will vary by the type of product but might include

temperatures rising and triggering pathogen growth
product or components melting, defrosting or distorting and becoming unsuitable to use
product crushing or creating drip-loss within holding vessels

One method used to ensure that any wastefulness is avoided is **line balancing** which seeks to **equalise throughputs** at each work station so that each process step runs at the same pace, the speed of which will deliver the target volume.

Tracking Temperatures During Processing

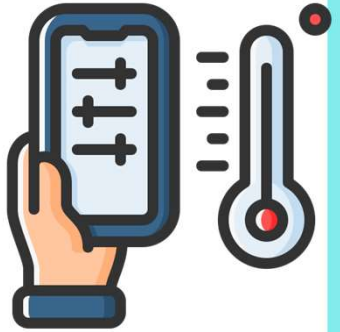


If you are **tempering/ defrosting, cooking, cooling or freezing products** you will need to track the time this takes to be fully accomplished, in order to confirm that the processes used produce food that is safe for consumers to eat.

Surface temperatures can be monitored using **digital infrared thermometers**, but this will not tell you what you need to know about what is happening to **temperatures movements at the product core**.

To **track internal temperatures** a probe will need to be inserted into the centre of the raw materials, or into the middle of a work in process batch, a stack of packaged end productor or within stock which has been palletised.

It can prove **difficult to achieve core temperature readings** using hand-held thermometers.

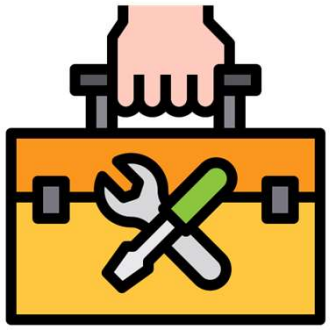


This is why many production sites use **thermal data loggers**, the remote probes of which can be inserted into products at different positions within the batch to create a representative cross section of information which is then recorded by programmable software and can be downloaded for analysis.

Thinking About Equipment

Consider what you are trying to achieve with your product and how the machinery and other equipment you have available works to deliver the desired results and outcomes.

This equipment will need to **support the effective processing** of the ingredients, sub-components and final end product in a manner which is appropriate to its role and position in the process flow.



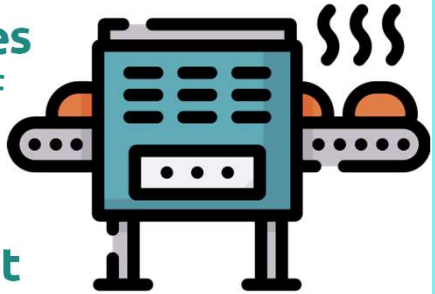
You will need consider any **delivery lead-times** if you need to invest in new or hire equipment – not only that the equipment will be available for the trial but to ensure it will be **commissioned before your planned launch date**.

New equipment will also need to be assessed for **food manufacturing environment compliance** and its **safety** during use, cleaning and maintenance.

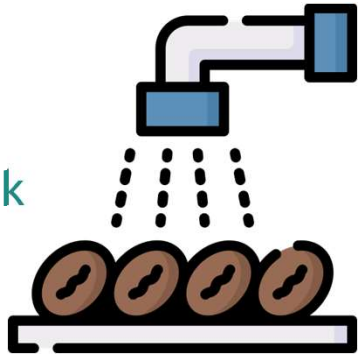
When conducting your equipment trials you may also need to apply the principle of emulating the **"worst case scenario"** for example ensuring that a blast refrigerator or freezer is **fully loaded** and ingoing product is at the **maximum potential temperatures** when confirming that cooling or freezing can be achieved within a time which guarantees food safety.

Thinking About Equipment

Consider the machinery or equipment's **capacity to handle the batch sizes you have planned and throughput rates** in relation to the desired rate of running for the whole line.



You may also need to explore **any variability within a piece of equipment** – for example to check whether an oven being used has any hot spots or cold spots that will effect evenness of cooking.



Also you should assess if product is **at risk of becoming stuck** at a certain point and not flowing through the equipment at a rate which avoids the risk of pathogens building up or means that it could cross contaminate subsequent product flow, which may **compromise food safety**,

If you have a choice of machines at differing sizes, capacities and prices, can you justify it being **future-proofed** ?

This would mean that it is capable of supporting increases in volumes, seasonal or promotional peaks of production or be capable of processing other potential new products in your innovation pipeline ?

Reviewing Machinery Services and Settings

You will need to ensure that all the **services needed for machinery** to run, such as electricity, water, air or modified atmosphere gas supplies are in place.

As your trial progresses you should **capture key pieces of information** about any equipment used – this might be machinery which performs a specific **process** or which **transits** products through other equipment product or **transfers** product between production locations.

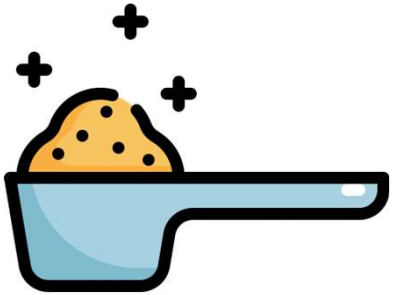
For each machinery aim to agree with the engineers or production operators what are the **key variables that you should record** to ensure that they can be replicated at launch – or those which trigger issues and should be avoided.

This might include **details which are specific to the new product** such as operating speeds, mixing intensity, settings for pressure or vacuum, and temperatures and dwell times or metal detector settings.

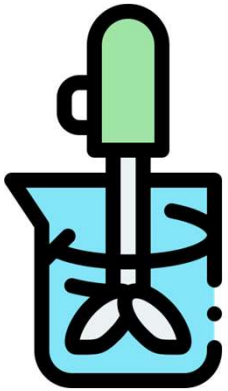
When assessing new machinery you may wish to note **more general factors** such as time it takes to fill and empty a batch, speed and ease of re-loading consumables such as packaging film or efficiency when de-nesting trays or folding cartons, accuracy of label application, ability to apply date-codes or batch numbers and any other requirements.

Don’t Forget Smaller Equipment

Equipment used for production may also include **hand-held items** such as scoops, paddles, temperature probes, knives or other cutting tools.

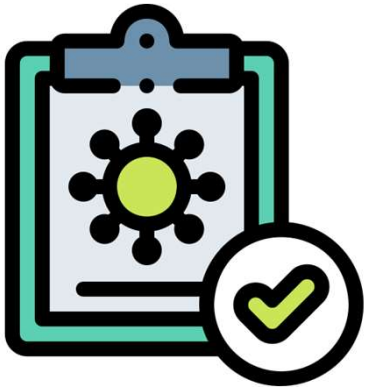


You may be using **hand-operated machinery** such as bandsaws, hand-held dosing equipment or “depositing guns” or portable shear mixers.



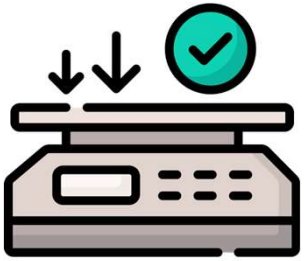
The **effectiveness** of any such equipment should be assessed during the trial and it’s **suitability** noted in your factory trial report.

If the equipment proves not to be suitable or efficient to use, this may present a **problem to be resolved** and need **smaller scale tests** focused on that specific piece of equipment to be carried out before the product launches.



Tracking Weights and Yields

Managing how **products decrease or increase in weight** or volume during the product process is a key part of trial investigations.



Yield losses may occur when residues are left or spillage occurs when removing ingredients from packing or be a function of residual amounts left in machinery and batch sizes or frequency of production.
As volumes grow, so the costs of yield losses escalate.

Weight can also be lost due to evaporation, drip-loss or freezer losses. Sometimes weight loss is **a desirable and integral part** of the product being made, such as moisture being driven off to create crispy or crunchy products.

Weight gains maybe a desired outcome, for example when marinating, rehydrating or coating products.

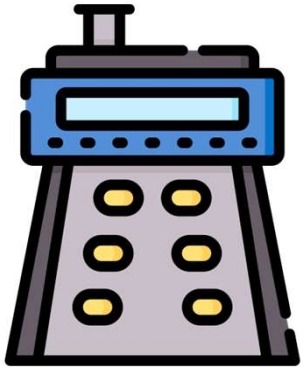
In all cases, **understanding what is happening and when** is important and weights of individual units or batches (whichever is appropriate) should be monitored and analysed at key points of the process.

Understanding this area is critical to **process control, managing procurement needs, food waste and control of costs regarding outputs vs. inputs.**

Implications of Weight Control

The more **expensive** a component or ingredient is, the more **costly** any losses will be.

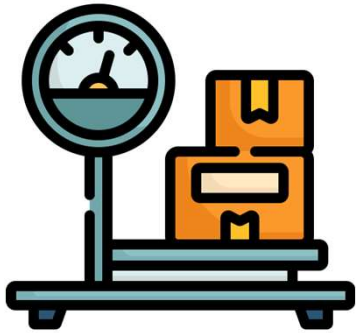
This may mean that a trial can **test out equipment** designed to scrape, squeeze, agitate or purge to remove residues from ingredients packaging or processing equipment.



As volumes grow, so the costs of yield losses escalate so controlling weight and yield losses from the outset of a product's lifetime will prove to be **a good investment** as your sales increase.

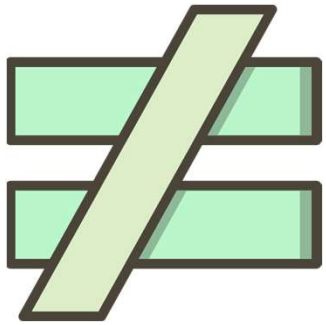
Weight management of ingredients and sub-components also has legal implications relating to how these are declared on your ingredients list on the final packaging because you will need to comply with **QUID (quantitative ingredients declaration) legislation.**

Hitting Your Target Finished Product Weights



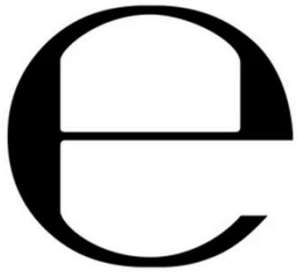
Achieving the targeted finished product weight is a key aspect to ensuring that your new product will be **consistent**, **legally compliant** and **produced to the costs** attributed to it.

You should **record the weights of the finished product packs** as they come off the packing line, with particular attention to any variations that may occur at the **beginning or end** of a production run when compared to the **middle of the run**.



Analyse the pack weights against targets and **note the variances** which have occurred.

Compliance will need to be assessed depending on whether you are packing to **minimum weight or average weight regulations**.

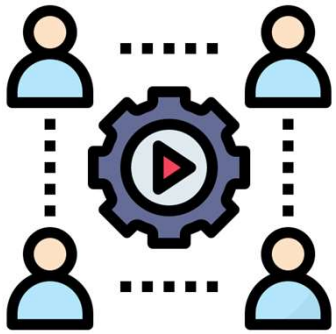


The more tightly you can control final product weights, the more consistent your product will be in the eyes of the consumer and will behave during consumer cooking for example.

Also any **“giveaway”** of finished products will be lower, meaning cost control is improved.

Cost Implications

Every ingredient, component, process, handling requirement, wastage and time taken brings its own **cost implications**.

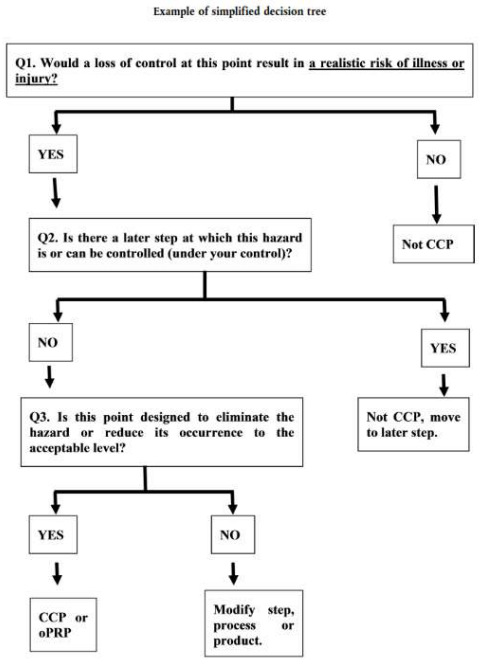


Your trial needs to **capture salient information** to allow **representative costings to be generated** and any **return on investment** to be calculated.

As well as weight monitoring already mentioned, you may need to consider

- **labour** requirements and staff utilisation rates
- run rates and **throughputs** such as packs per minute achieved
- **energy** and **water** usage
- levels of **rejects** or product **breakages**
- whether product is permitted to be **reworked** and at what level
- **wastage** of ingredients, work in progress and packaging
- if these by-products could have a commercial value to be sold on, or incorporated into another product
- **downtime** of machinery during production or to be cleaned
- cost of **cleaning chemicals**
- the **relationship of inputs to outputs** to allow accurate procurement of components for your anticipated production volumes

Food Safety & HACCP Considerations



The trial gives a perfect opportunity to **fully risk assess** every ingredient, component, item of equipment, handling procedures and processing step.

This is key to ensuring the **food safety** of your new product and any **impacts** it may have on existing products and production areas.

If any of these elements are new to the factory, then the site's **Quality Management Systems** and all associated documentation used within these systems will need to be updated.

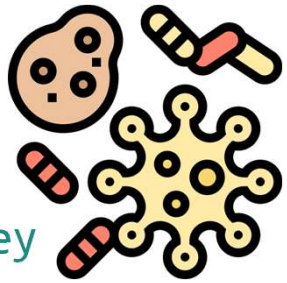
You should map all factors involved with the new product against your most up to date **HACCP plan**, and confirm it sits within the current HACCP plan.

If a new consideration for food safety arises that is not covered within the existing HACCP plan, **HACCP review** needs to be triggered and appropriate hazard analysis undertaken by the HACCP team in order to put an **updated plan** in place before the product is launched.

Record Food Safety & CCP Factors

CCP's – Critical Control Points – are a key component of a HACCP plan and are a point where control can be applied to food handling processes, to **prevent hazards** from occurring or **reduce them to an acceptable level**.
These control points apply to **biological, chemical, physical and allergenic** hazards which have been identified.

This means that you will want to monitor and record any **kill steps** – such as pathogen-killing washes, cooking and cooling, pasteurisation or sterilisation.
This will include paying attention to kill steps, time in the "danger zone "of temperatures and the **risk of recontamination** by pathogens after the kill step.

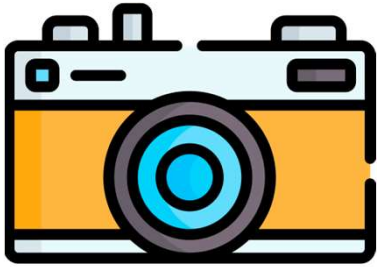


For example you may need to record the time taken to process the product at key steps and assess any implications for food safety when work in progress is being held out of chill or is in the process of cooling down to below 5oC.
You must watch for **risks of recontamination,** which could occur if a product which has undergone a kill step is exposed to the factory environment at a later stage.

Pay attention to **allergen management** and the **risks of cross contamination** for the product itself or products also being produced on the site or adjacent lines being used. You must also avoid any **risk of chemical or foreign body contamination** from ingredients, machinery, staff or the factory environment.

Defining Quality Controls

The trial also allows you to confirm that the ingredients and production processes deployed will **achieve the quality attributes** that you have defined for your product.



Scaling up may affect the texture, appearance or taste of the product and you will need to use the trial as an opportunity to **assess and document the targets** to which the production team will be working after launch and what variances can be approved as being within an **allowable tolerance**.

Taking photographs can assist in creating reference documents to show “good and bad standards” in an easy to follow visual manner.

So ensure the necessary pictures are taken at any important stages when quality can be impacted.

These are known as **QCP’s – Quality Control Points** – and **targets and acceptable tolerances** need to be defined along with an understanding of what issues can arise and how they can be avoided, mitigated or dealt with through corrective actions.

Generate Information to Prove Controls are in Place

During your trial you can utilise many of the methods that the quality control or technical team may use on an ongoing basis to prove that production processes and controls are working effectively.

This information should be recorded and retained for future reference as your products go on to be tested and verified as food safe.

These checks will vary depending on the type of product being produced but some examples might include activities such as :

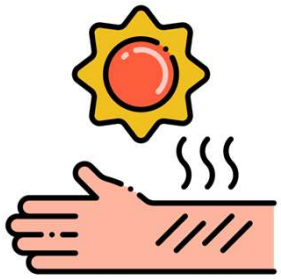
Swabbing of equipment and production staff to confirm that undesired allergens are not present – for example confirming that no gluten is present for gluten free products.

Conducting metal detection tests.

Confirming that the correct gas mix has been achieved in a modified atmosphere pack

Checking that labels are adhering correctly and online printing is legible

Keeping Everyone Healthy and Safe



Consider **workplace safety** and the **wellbeing** of staff and other persons on site.

This may include

- assessing weight and awkwardness of items needing manual handling

- risk of repetitive strain injuries

- risks of pinching, cuts, burns – from hot or frozen contact – and abrasions

- exposure to chemical irritants – including skin and eye contact

- inhalation risks from any dusts, chemicals or airborne particles

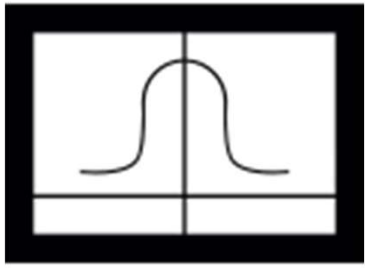
- ensuring no trip or slip hazards are created

- assessing hearing protection needs in noisy environments

Understanding What Your Trials Are Telling You

Having put so much planning and effort into conducting your new product trials, it is very important to **set aside adequate time to review and report** what you have leant.

- **Return to the list of questions** that you posed when you were planning the trial, and **systematically work through the information** that you collected to answer these questions



- Looking at long lists of numeric data is not particularly helpful in terms of understanding what they are telling you.

- So take the time to **analyse the data** that you collected and **create meaningful information** from your facts and figures – consider using graphs as these are a good way to present key statistics in a way that is easy to understand.

- Ask yourself if the trial raised **any new questions** or **revealed something that was unexpected** – what do you need to do next to address these issues ?

Following Up Your Trials

1. Create **a list of any actions** that have arisen and need to be completed before the product progresses to launch

2. **Allocate these tasks** to the appropriate person and **agree the deadline** for the action.

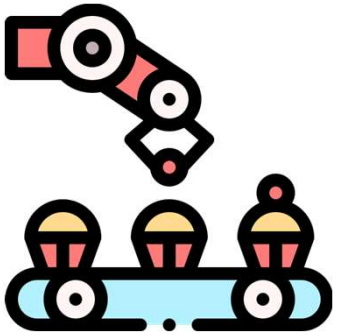
3. **"Close the loop"** by checking that all activities and decisions needed after the trial have been finalised – and that the outcomes will support a successful launch.

4. Formally confirm what will happen next with the product
   - is it **approved** to proceed to launch ?
   - does it need **further trials** ?
   - should it be **significantly amended** ?
   - should it be **abandoned completely** ?

5. Ensure that all the stakeholders involved in the product launch process are **informed about the trial**, it's outcomes, what is happening next and any timelines involved.

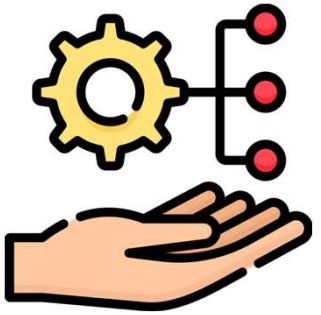
Tips for Re-Trialling

1. **Focus on what the retrial needs to achieve**, what questions you need to answer or what needs to be proven.

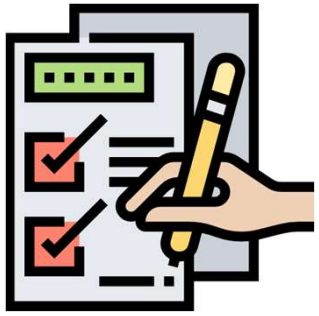


2. Sometimes you will need to **conduct the trial again** in it's entirety, but sometimes only certain processing steps, labour handling, raw materials, machinery or equipment may need verification – what is right for you ?

3. **Defining the scope of the trial** allows you to ensure that the time and money it will entail is appropriate to what the re-trial needs to achieve. It can be tempting to make numerous changes to the variables in the trials, but consider this approach very carefully.



4. It may be hard to understand the impact of a specific processing step, new ingredient or piece of equipment if you have made several alterations at once. If you do need to determine the impact of individual changes, then you may need to **vary each one separately** in a sequence of trials, not one which alters a number of variables.



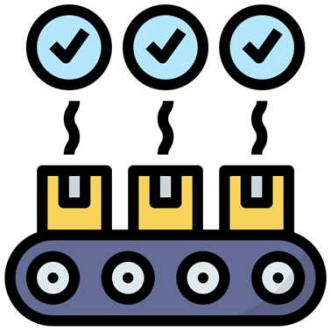
5. Ensure you **keep stakeholders informed** and **close out all outstanding actions** needed to determine if the new product should progress.

Pre-Production Trials

Many production sites decide to conduct a scaled up pre-production trial shortly before a new product is produced for a target launch date.

This allows the team to

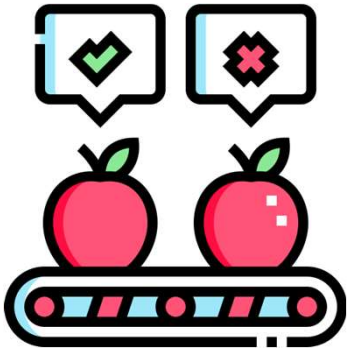
iron out any last potential issues,



have a trial run implementing any new processes,

ensure that staff are fully trained,

confirm that all machinery and equipment is available in the correct part of the factory and running effectively.



If you are producing a product for a customer in their own brand, they may well request to attend your pre-production run to reassure themselves that the launch will go smoothly.

Bonuses From Your Trials !

Sometimes some **bonus information** may be revealed by the trial into a new product that can actually have wider benefits to your production site.

Every organisation should be open to seizing **opportunities for continuous improvement** and quite often trials can contribute to this.

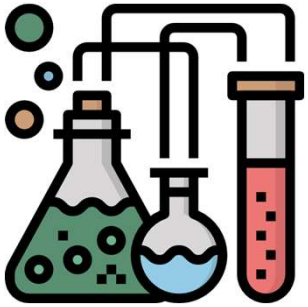
Perhaps the team at the trial noticed certain ways in which **working practices could be improved upon and become more effective** ?

Or you may have discovered **ways of working** that are less onerous or safer for your production staff ?

Maybe you asked an ingredients supplier or machinery manufacturer to help and provide their expertise at the trial ?
This can often lead to you realising that it might be possible to **reduce costs or wastage**, or to **run the machinery more efficiently, avoid breakdowns or reduce production line downtime.**

Sharing actionable insight that makes everyone's life easier or better is a good way to **create a positive attitude towards production trials** !

NEXT STEPS :



In our next modules we will look at the following :

P5-M7 – Outlines the **testing** which new food and drink products need to undergo to prove that they are safe for consumers and to give you the facts that you will need to ensure that the labelling information you provide is accurate and legally compliant.

P5- M8 How to ensure that your **labels meet all your legal obligations**.

P5-M9 Provides a helpful template and advice on how to **generate your on pack information** in a systematic and accurate way.

P5-M10 Suggests how to **rigorously check the information on your artwork**, so you can ensure it is fully correct before you print or create your packaging

P5- M11 Will steer you though the **final preparations** for launching your new product.

We hope that you have found this training module a useful and helpful support to your healthy food and drink innovation.

This training module is one of a number of training opportunities, organised into themed training programmes to support SME's (small & medium sized enterprises) in the participating regions of Wales, Northern Ireland, Ireland, Spain, Portugal and France to successfully bring new and reformulated healthy food and drink products to market.

The training was created by the partners within the AHFES project
which is a quadruple helix Atlantic area healthy food eco-system for the growth of SME's
funded by the European Union under the Interreg Atlantic Area Funding Programme.

This programme promotes transnational cooperation among 36 Atlantic regions of 5 European countries and co-finances cooperation projects in the fields of Innovation & Competitiveness, Resource Efficiency, Territorial Risks Management, Biodiversity and Natural & Cultural Assets.

For more information about other training available please click here.

This project is co-financed by the European Regional Development Fund through the Interreg Atlantic Area Programme

Acknowledgements

Presentation template by Slidesgo

Icons by Flaticon

Images & infographics by Freepik