# Preparing for Production Trials

For Healthy Food & Drink Products

Interreg Atlantic Area
European Regional Development Fund
EUROPEAN UNION
AHFES

# Module Contents

# Module Contents

## 3. Production Trial Checklists



## 4. Progressing To Trial

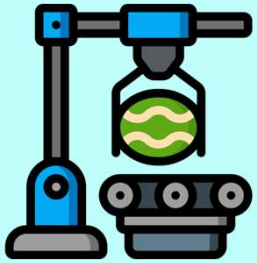
# Scope of this Training Module

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 :

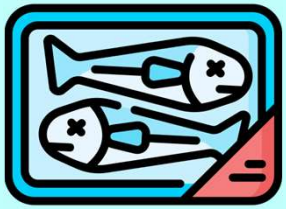
**Improving Production Outputs**



**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.

It therefore assumes that you have gathered your Consumer Insight, conducted your Market Insight activities and undertaken Benchmarking of competing or other relevant products.

These actions, along with defining your Brand Values and considering how products may need to be Tailored to Suit Specific Markets will set the context for any new products that you plan to trial.

By describing the Quality Attributes that your products need to attain, you will have set a clear set of target characteristics against which you will be able to compare the products which are achieved during your production trials.

In this way you will both be clear **what your target consumers and key customers will value** in your new products and be **able to focus** on the **most significant product attributes**.

This allows you to **confirm** that **your proposed production processes** can definitely deliver your desired product or, if you **identify issues**, you and your colleagues will be able to **consider the best solutions** and **take swift corrective actions** to resolve any problems.

# Why are Production Trials Important ?

Conducting, recording and acting upon the findings of high calibre production trials is a fundamental part of proving to a court of law, auditors and key customers that your business has exercised all possible **due diligence** when bringing a new product to market.

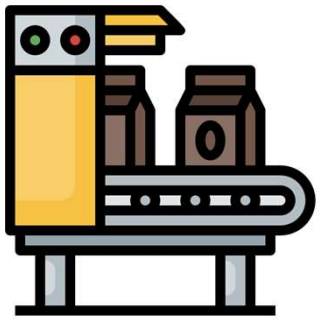
By assigning staff time and management focus, allocating appropriate financing and dedicating other necessary resources to production trials you will **avoid potentially costly mistakes** in your choice of processing methods and manufacturing or packing equipment.

You will be able to launch your new product confident in the knowledge that you can **produce it at the rate needed to meet anticipated demand**, and that you will not let important customers down by failing to fulfil their orders in full and on time.

# Why are Production Trials Important ?

You will gain a clear insight into the **true costs** attributable to the product, **allowing profit margins to be assessed** and the **commercial viability** of the product to be confirmed at an early stage, so that losses are not incurred when the product launches.

A production trial is the opportunity to confirm if the line layout and process flow you have envisaged is the most effective.



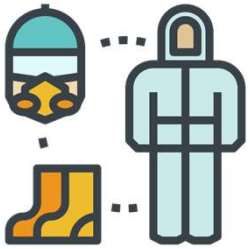
With the data you generate at the trials, you will be able to understand any implications on the **utilisation rates** of machinery or production lines **and identify any potential bottlenecks** in the process flows.

You can also assess if the new product may cause any **downtime** for production lines or processing and packing machinery.

All of this information allows for effective production planning and for **realistic production targets** to be set, and confirms the impact that the new product may have on over all **factory efficiencies.**

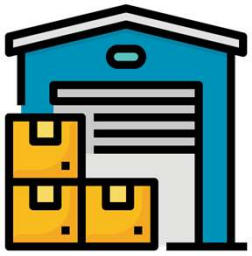
# Why are Production Trials Important ?

Production trials are an opportunity to capture the information needed to write **standard operating procedures** and **train your staff** in order to **maximise labour efficiencies**.



When conducted thoroughly, your trials should reveal any threats to the **health and safety** of staff and other personnel on the production site. This allows you to resolve these issues and source any appropriate **Personal Protective Equipment (PPE)** needed.

The trial outcomes help everyone agree what **Quality Standards** products need to attain and what **Quality Assurance Checks** should be implemented to monitor compliance.



You can assess the new products **impacts on storage capacity** – both at intakes and despatch, as well as any work in progress holding stages.

# Why are Production Trials Important ?

You will be able to identify potential **food safety hazards** and **allergen management issues** and determine if these are covered in your current **HACCP plans**. If not, you have the opportunity to update your HACCP plans and **set in place appropriate control points and monitoring protocols**.

You can take the opportunity to understand what **cleaning processes & cleaning products** will be needed for lines and equipment, and factor in the impacts of cleaning to avoid cross contamination from any allergens being handled. You can also to assess the likely **time and labour** needed to accomplish the necessary clean downs.

You will be able to consider any potential **negative environmental impacts** and what actions are needed to prevent this happening.

By addressing any potential issues, as outlined above, you will be protecting future consumers of your product, your staff and the wider environment and ultimately the **good name and reputation** of your business.

# Good Trial Planning Pays Back

Production Trials represent a **cost to any business**, both in direct inputs of raw materials and labour and in the management focus and production time that they require.

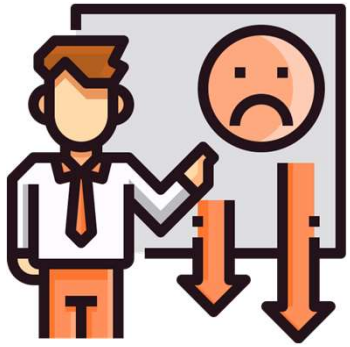
Thorough and effective planning can help ensure that **costs are kept under control** and to the minimum possible, whilst still achieving all of the benefits, objectives and desired outputs of the trials.

**Each new product is different**, and even when the product seems on the surface to be very similar to an existing product, it is **not safe to assume** it will perform or react in the same way.

# Poor Trial Planning Wastes Time and Money

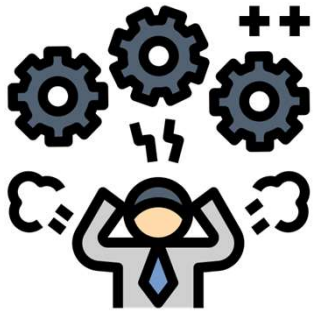
For **every individual product** some level of trialling, as appropriate to your current knowledge and experience, should be conducted to **confirm** the best production methods and to **prove** that it can be produced safely, consistently and within cost targets.

**Poorly planned trials** may still **cost** your business time and money, but **fail** to reveal all of the insight that you need to launch your new products successfully.



This may cause **frustration** amongst your business colleagues and **undermine their enthusiasm** to support product development in the future.

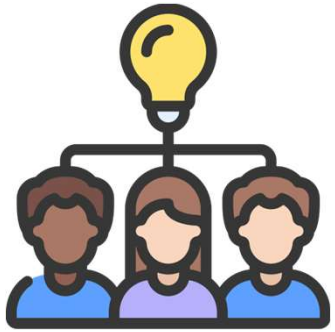
It is always better to have the **best possible plan** before you reach the trial day than find you have an unanticipated and tricky problem to solve, when you have committed all your expensive raw material and packaging stock to the trial, and have staff waiting around and production lines sitting idle !



# Who Should Be Involved In Planning Trials ?

Just as every product varies, so every trial often has a **different set of objectives and requirements** but one key point is that to be **meaningful,** it is important that your trials are **representative of full scale production.**

If you work within larger businesses, best practice is to **set the trial parameters as a team**, drawing on the expertise of a range of key staff members by asking them to **list what questions they feel the trials need to answer**.



Relevant staff might include experienced team members from many areas e.g. **Production & Operations , Technical and Food Safety, Intakes and Despatch, Engineering, Purchasing & Supply Chain, Cost Accounting, Environmental, Health & Safety, Training and Customer Account Management.**

If yours is a smaller business, you and other colleagues may fulfil several functions, but it is still important to ask yourself questions in all these areas.

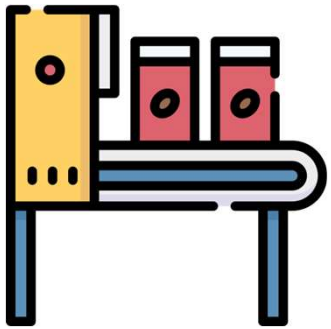
In both instances a **trial planning checklist** can be a helpful prompt to ensuring nothing important gets forgotten.

# What Goes onto your Production Trial Checklist ?

**Your trial planning checklist** will probably cover topics like these :-


**Trial Scale & Quantities** –
In order to give everyone involved with the trial the useful and meaningful information that they need to know, you should decide :

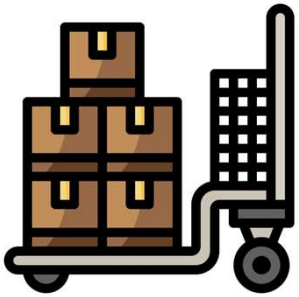
1. how large scale should your trial be and
2. how much product should it involve producing



This may be determined by several considerations – for example

1. the amount that is needed to fill processing machinery

2. what quantity will give you a representative view of how efficiently the packing lines are running,

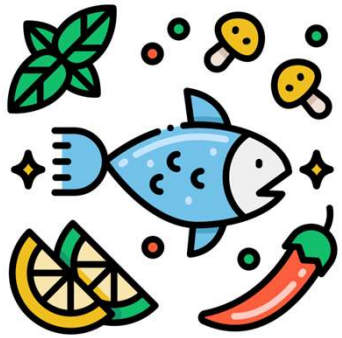


3. How much production time is needed to train staff

4. What amount of end product will you need - for example to ensure you have enough packs for any testing needed and to provide samples for customers, consumer research or marketing purposes such as photography.

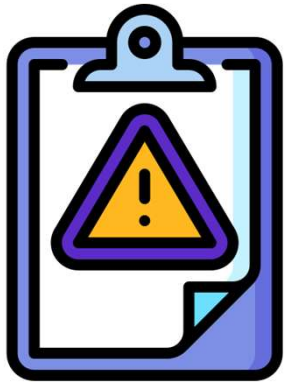
# Production Trial Checklist – Items You Will Need

**Raw Materials – what raw material ingredients are needed** in what quantities, can you procure the necessary materials in a suitable format, by when and at what cost ?



If you are producing for a specific customer, for example for a supermarket in their own brand, you will need to ensure that all the raw materials selected meet their codes of practice.

Is a **food safety risk assessment** needed before the raw materials can enter the production trial environment and what handling protocols are needed ?



At what point in their **shelf life** do you need to trial key ingredients ? The shelf life of your end product and its quality may be impacted by the shelf life of its components, so your trial plan needs to factor this in and the date codes on your raw materials be managed accordingly.

When dealing with perishable and shorter life raw materials, in many instances it is industry best practice to conduct the trial with raw materials which are **at the end of their shelf life**. However, this may not be practical with raw materials which have long ambient or frozen shelf lives.

# Production Trial Checklist – Items You Will Need

**Packaging** – many of the questions considered for raw materials also apply to any **new items of packaging** that you may require.

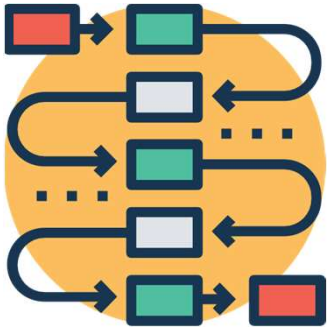
Ensure that you are clear what **quantities of packaging** you require. For certain items, such as film that will be sealed on your packing lines, you may need considerably more material than is needed for the number of packs or units to be produced in order for the machinery to run properly and for run rates to be calculated.

**Delivery lead-times** for packaging need to be considered when scheduling your trial date, to ensure that all the packaging needed is on site for the target date.

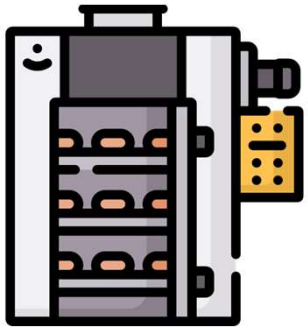
Some packaging items may be subject to **minimum order quantities or specific print runs** and these factors will impact upon the costs involved to secure the packaging that you will need.

**Who will be responsible for ordering or arranging** both raw materials and packaging and ensuring that they arrive on schedule ?

# Production Trial Checklist – Planning the Process Flow



**Processing** – you will want to create a proposal for the **process flow** for your new product which takes it through **every step** from intake of raw materials to the output of the final product.



Remember to include steps at which the product **transits** between processing steps or equipment, and any points at which it may need to be **held** or becomes WIP (work in progress) stock. To fully test food safety parameters the trial should be planned to include the maximum WIP times likely or permitted, as this will present **a "worst case scenario"** when assessing shelf life and product quality.

You may find it helpful to create an outline **draft** of the process flow on paper, and then physically **"walk the line"** - that is follow the proposed flow through from beginning to end – in the production site.

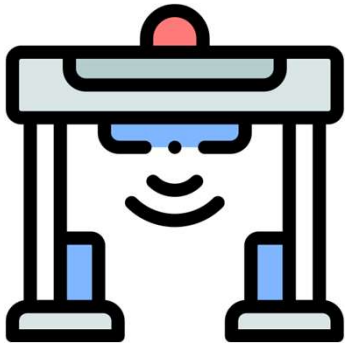
If your concept involves some new processes, doing this "line walk" **collaboratively** with key production, technical and engineering staff can be very useful for **identifying the best options** and flagging up any **potential issues**, and might allow you to **brainstorm solutions** in advance.

# Production Trial Checklist – Equipment Needs

**Equipment** – your process flow can also be used to identify what **equipment you will need at each stage**.

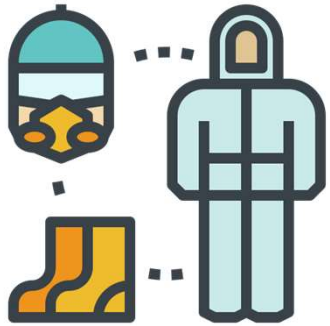
This will obviously vary considerably depending on the type of product you are making but **production equipment** may included

- scales, cutting or size reduction equipment, blending and mixing vessels, proving chambers, moulds & shaping equipment, depositors, conveyer belts, metal detectors, cooking and cooling equipment, packaging machinery or even in large automated sites, pick and place robotics.

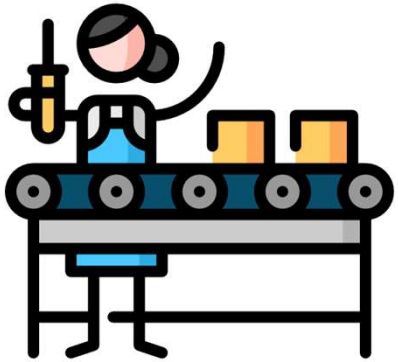


**Staff may also need specific equipment**

– from knives, tongs or scoops to personal protective equipment such as gloves to protect from heat, freezing temperatures, acidic or caustic substances or risk of cuts, chain mail or splash proof aprons or even breathing apparatus and eye protection in dusty environments or when handling items such as mustard or vinegar when hazardous fumes can be generated.



# Production Trial Checklist - People



**Staffing** – who needs to attend the trial and what will they be required to do ? For example :

You may need **production staff** to physically produce the products.

**Production or operations managers** may need to organise these staff and assess the progress of the trial.

They will contribute to what can be learnt and consider solutions to any issues that are revealed.

**Engineers** – may need be needed to test new or run complex equipment

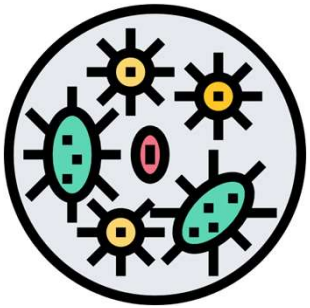
**Technical /Quality staff** can be present to assess anything that arises to do with HACCP, food safety, and quality matters.


**Development staff** may be responsible for co-ordinating the trial activities and ensuring that all the necessary information is being collected and documented

# Production Trial Checklist – Capturing Important Information

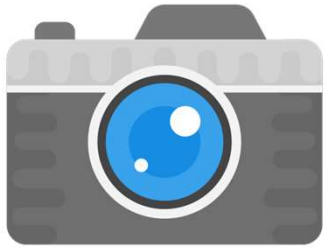

As the trial happens, you will want to capture every scrap of interesting insight and information as you go along, in order to **learn as much as possible** about the product and how it will be manufactured.

To do this, as the person overseeing the trial, you will want to be sure you have all the equipment that you will need **to gather and record** all the important information.



Here you can turn back to the list of questions that have been identified as needing to be answered, and **create a list of items** you may need to capture all the relevant details.

Don't forget that everything you wish to take into the food manufacturing environment must be **food safe,** and not present any risk of introducing foreign bodies or causing contamination from chemicals, pathogens or any other causes of concern.



So anything you will need, from reference documents to trial logs, and from pens to clipboards, a camera, scales, rulers or callipers – will all need to be **appropriate for use in the food handling environment.**

# Preparing and Sharing Manufacturing Specifications

Drafting and sharing a **preliminary manufacturing specification –** often referred to as the new product's "factory spec" is a good way to inform everyone who will be involved in the trial about the **key information** they need to know – such as

what the product is that they will be making
what ingredients are to be used
what processing steps, labour requirements & equipment are involved

In some complex processing environments, where different stages of production of the product take place in very separate parts of the site, you may choose to create and issue **individually tailored draft manufacturing specifications to each production area**.
For example to ensure food safety, some sites are split and maintain differentiated low risk and high risk or allergen free and allergen handling production halls in which staff, equipment, airflow and drainage do not mix.

Issuing the draft documents ahead of the trial is a very good way of **offering guidance** to the team across the production site and also can be helpful **opening discussions** about potential food safety hazards or risks, processing challenges or equipment and staff training needs.

# Documenting Your Trial Information

A lot will be going on during your production trials and it's important that you have a methodical way to make sure everything you need to know is explored and the data and information you reveal is captured and recorded.

One good way to ensure this happens is by preparing a **production trial information capture document** before the trial starts.

We have a template available to accompany this module which you can adapt to suit your trial needs.

By creating this document to take to the trial with you can make sure you have noted all the questions that you want to answer and use it to **capture all your important trial data, findings and outcomes.**

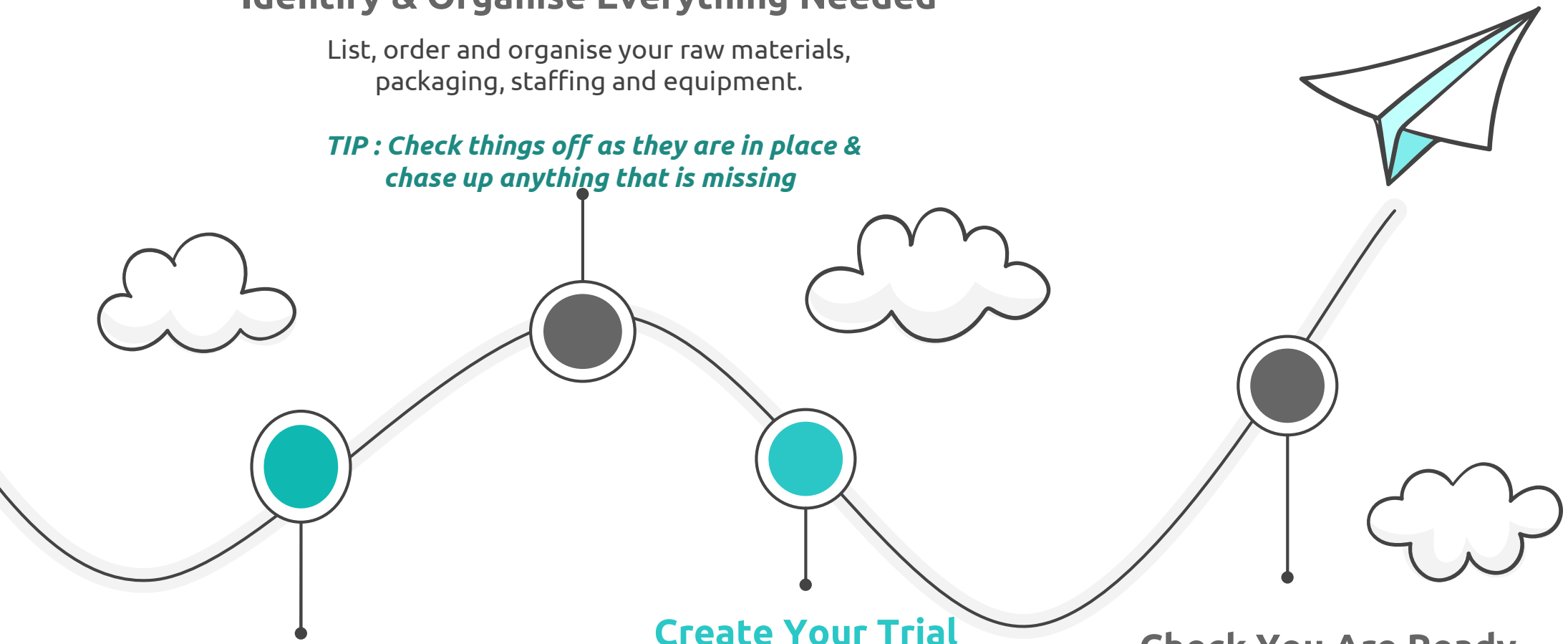
You can then analyse this information to **generate answers** to the questions that were being explored – or to **highlight that some questions still remain unanswered** and need further actions to address this lack of knowledge or issue.

# Trial Countdown

## Identify & Organise Everything Needed

List, order and organise your raw materials, packaging, staffing and equipment.

***TIP : Check things off as they are in place & chase up anything that is missing***



## Agree the Trial Objectives

What do you need to achieve and what information do you want to reveal ?

***TIP : Be sure to capture all stakeholders needs***

## Create Your Trial Document

Incorporate your objectives and be clear what you want to record

***TIP : If you are using a template document, double check and update it to cover the specific trial needs***

## Check You Are Ready

Ensure everything is in place for a successful trial to take place

***TIP : Remind the key people involved what is happening and when***

# Next Module - Conducting The Trials

In our next module **P5-M6** which is called **Conducting Effective Production Trials** we will share some tips for managing the trial itself in the best way.

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.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