AN INTRODUCTION TO RISK ASSESSMENTS FOR FRESH PRODUCE

This appendix explains how to clearly identify and implement effective controls to reduce or eliminate food safety risks within the production process.

The Red Tractor Assurance Fresh Produce Scheme expects its members to identify and prevent food safety problems occurring. An approach to this is to identify risks and their points within the production process, and to implement procedures to prevent or minimise them.

Legally growers have to comply with the EU Food Hygiene regulations and follow good hygiene practice and manage their operations in a way that controls food safety problems. Carrying out a Risk Assessment provides evidence of how they have implemented this requirement

(see **https://www.food.gov.uk/business-industry/farmingfood/primprodqanda**).

Each growing situation will be unique in terms of the risk and technical challenges, so no two risk assessments are likely to be the same. There are some generic areas of risk such as pest control in buildings, while others such as animal manures and irrigation water are specific to the crop

Most crop production operations follow a basic pattern of selection of raw material inputs, crop production operations carried out, harvesting, post-harvest handling operations, storage, through to transport to customer. There may be other steps or variations but most crop production operations are very similar.

The risk assessment starts by breaking down the crop production operation into steps, e.g. selection of crop variety, cultivations, crop protection measures, harvesting, and post-harvest handling. The risks associated with each of these steps are then considered. A risk in terms of food safety is anything that may cause harm to the consumer. Risks may be microbiological, physical (e.g. stones), allergenic or chemical (e.g. pesticide residues).

IMPLEMENTATION OF A RISK ASSESSMENT FOR HORTICULTRUAL PRODUCTION

This system is suitable for small, medium or large crop production operations. It is a flexible management tool which can be applied to a wide range of simple or complex operations including arable crops, field vegetables, protected crops, soft fruit and top fruit production.

Stage 1. Developing a Risk Assessment

Initially you will need to identify the “scope” i.e. the growing, harvesting and packing operations that you will be risk assessing.

Secondly clearly identify the areas of risks you will be looking to identify during the risk assessment (see Table RA.1 below for examples).

Thirdly get together the staff within the business who have the skills and knowledge of the operation.

Table RA.1 Potential Risks to Be Reviewed During the Risk Assessment

Physical	■ Foreign bodies such as glass, metal, plastic, golf balls etc. ■ Risks posed by the land itself and its surroundings e.g. previous use, livestock grazing, public rights of way etc. ■ Proximity of other high risk activities e.g. waste sites, waste treatment facilities, abattoir’s etc. ■ Hydrological features e.g. flood risk, groundwater, surface water flow, infiltration, soil moisture etc. ■ Wildlife and/or domestic animals e.g. presence of animal feces, bird’s nests, hair/fur, burrowing etc.
Chemical	■ Heavy metals ■ Plant Protection Products (PPPs) ■ Fertilisers ■ Biostimulants ■ Rodenticides ■ Cleaning chemicals ■ lubricants ■ Perchlorates ■ Heavy metals from historic industrial or mining activities ■ Grease ■ Oil ■ Fuel

AN INTRODUCTION TO RISK ASSESSMENTS FOR FRESH PRODUCE

Microbiological	■ Bacteria, viruses and moulds e.g. Salmonella, E. coli and Norovirus ■ Potential contamination from humans (staff and public), vermin, wild and/or domestic animals, insects, tools, equipment and vehicles ■ Contamination of water sources ■ Temperature abuse due to poor chill chain management ■ Fertilisers e.g. manures ■ Neighbouring agricultural activities ■ Contamination from pests and vermin ■ Contamination from environmental events e.g. flooding
Allergenic	■ Cross contamination for allergenic crops ■ Contamination from allergens (nuts, lubricants) from surrounding environment ■ Contamination from staff
Customer Expectations	■ Products meet customer specific expectations
Food Fraud	■ Counterfeit PPPs ■ Propagation material ■ Non-food grade packaging material

Stage 2: Developing a "Process Flow"

Using both your own and your team's knowledge of the operations develop a simple "map" of the growing process in order of them happening. This ideally should be in the form of a simple flow diagram:

Example 1 – Simplistic Flow Diagram for Baby Leaf

Bed-forming ► Planting of Seed ► Irrigation ► Pesticide Application ► Foliar Feeds ► Crop Assessment ► Harvest ► Cooling ► Inspection ► Packing ►Distribution

Example 2 – Simplistic Flow diagram for field/tunnel selection and the growing of field crops

1. Seed selection
↓
2. Plant propagation
↓
3. Field/site selection
↓
4. Skinning/de skinning tunnels/structure maintenance
↓
5. Green cover crops/mushroom composting (if required)
↓
6. Burning/steaming
↓
7. Cultivations/compaction removal
↓
8. Base fertiliser application
↓
9. Bed forming/herbicide application
↓
10. Planting/drilling/fertilising
↓
11. Crop covers (if required)
↓
12. Pesticide application
↓
13. Irrigation (if required)
↓
14. Crop cover removal
↓
15. Weeding (mechanical/hand) (if required)
↓
16. Crop walking/pre-harvest inspections

AN INTRODUCTION TO RISK ASSESSMENTS FOR FRESH PRODUCE

Stage 3: Identifying Risks

The next stage is to critically look at the risks throughout the growing operation.

Use each process step identified in stage 2 what risks (examples outlined in Table RA.1) could affect the crop and at what point in the process flow of production.

You should have identified a list of food safety risks associated with your specific crop production and location

Additional guidance on this can be found on **http://freshproducetool.foodstandards.gov.scot**

Stage 4: Managing Risk

For each risk identified a suitable control should be put in place. This can sound complex but most of these will already exist within your business and this process only gives an ordered way of managing and seeing the importance of these controls

For example:

Example 1:

Risk Identified: Non-approved pesticide residues or MRL exceedance

Control: Only use Pesticides that are approved for specific crop, advice from BASIS consultant, spray operator trained, sprayer annually checked

Example 2:

Risk Identified: Soft fruit pickers not washing their hands

Control: Business has hygiene policy clearly defined, all pickers are trained before they start work, hand washing compliance checked by supervisor

There will be others risk that are identified through this process that are not controlled or managed by your current management processes. These could represent considerable food safety risk to the crops you are producing and need to be managed:

Example 3:

Risk Identified: Potential Nut contamination of crops from nut trees in hedgerows. Control: A control should be developed that works for your business (cutting the tree down might seem the easiest but not the most environmentally friendly approach). Some controls could include:

- Arranging rotation so there is no cropping in field with nut trees when the nuts are ripe
- Having an X meter exclusion zone around the tree that's not harvested

At the end of the process you should have:

- Clear idea of what risks and crop production processes are in scope
- A simple flow diagram of the process
- A list of the food safety risks associated with each process step that affect your specific crop production process/location
- And most importantly a document that details the controls and management process, you have implemented/ identified that control the food safety risks within your business

The risk assessment needs to be revised annually or when there have been significant changes to the production process.

It can be appropriate to get help for professional organisation or consultants to aid you in developing a risk assessment, but you know your own business better than anyone, and with some guidance, are the best person to carry out the assessment.

