Food Safety
AUTHORITY OF IRELAND

Fresh Produce Safety

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Contents

Fresh Produce

Fresh produce includes fruits, vegetables, edible flowers and herbs that are raw and have not been processed, or altered by peeling, slicing, chopping, shredding etc. or by any preservation process, before being packaged. Fresh produce like other foods can sometimes cause illness if harmful microorganisms or chemicals contaminants are present. As harmful microorganisms and chemicals contaminants are often difficult to remove, preventing them getting onto fresh produce in the first place is best practice. The aim of this leaflet is to provide basic information to growers on good practices which will help improve fresh produce safety for Irish consumers.

Registration

Before beginning production of fresh produce, growers must register with the Department of Agriculture, Food and the Marine (DAFM). Registration involves the grower completing and submitting a registration form. Further details and copies of the registration form can be found on the DAFM website:

http://www.agriculture.gov.ie/farmingsectors/horticulture/foodproducerregistrationformsandinformation/

How to Reduce the Risks from Fresh Produce

You can't eliminate the risks from fresh produce produced on your farm but you can reduce the risk of people becoming ill by following these good practice steps:

1. Choose an Appropriate Site to Grow Fresh Produce
2. Restrict the Access of Animals, Pests and People
3. Use Organic Fertilisers Safely
4. Use Pesticides Safely
5. Source and Use a Safe Water Supply
6. Use Good Harvesting and Post-Harvest Practices
7. Train Staff and Provide Good Staff Facilities
8. Have a System of Traceability and Recall

1. Choose an Appropriate Site to Grow Fresh Produce

What are the food safety risks?

Contamination with harmful microorganisms, chemicals and waste material such as plastic.

How can risk be reduced?

Risk can be reduced by:

a. Knowing the site history which includes previous land use and practices including:
   - Having no recent history, i.e. within three years, of use for livestock production
   - Not close to an existing livestock operation
   - Not downstream or down slope from sites that house livestock

b. Examining the site location which includes the risk of flooding (rivers), public access, type of neighbouring farms (particularly if livestock) and industry

c. Avoiding mixed farming practices which include farm animals on the site
d. Knowing the type of soil and geology of the site including:
    - Avoiding soils which are shallow, highly permeable or prone to flooding or run-off
    - Avoiding soils which naturally have high levels of contaminants which can accumulate in certain types of fresh produce such as root and leafy crops

Note: *Further information on soil type and geology is available in the Soil Geochemical Atlas of Ireland, the Irish Soil Information System and the National Soils Database.*

e. Knowing the climate or prevalent weather patterns in the area including rainfall patterns which can increase the risk of surface water runoff and localised flooding onto lands used to grow fresh produce

Note: *Heavy rain has been shown to lead to contamination of fresh produce with harmful microorganisms due to splashing of organic fertilisers onto the crop or spreading harmful microorganisms throughout a field during flooding events.*

2. Restrict the Access of Animals, Pests and People

What are the food safety risks?

Manure deposited on land by livestock, wild animals, pests and domestic pets before and after a crop is sown can cause microbiological contamination.

How can risk be reduced?

Risk can be reduced by:

a. Limiting the access of livestock, wild animals, pests and domestic pets to sites of fresh produce production
b. Ensuring that fencing, hedges and gates surrounding cropped areas are appropriate to prevent entry

c. Checking for the presence of grazing animals, industry and other farms in areas adjacent to or close to the site location.

   For instance:
   - Sites close to grazing animals, poultry houses etc. have increased risk due to water run-off or aerosol formation, i.e. transmission through the air, from the adjacent grazing areas
   - If grazing animals are upstream from a fresh produce site, and river water is used for irrigation, there is potential for contamination of crops

d. Checking for the possibility of public access to areas growing fresh produce
e. Putting a pest control system in place and where possible using a licenced/approved pest control contractor

3. Use Organic Fertilisers Safely

Manure, slurry and biosolids are organic fertilisers used on farms in Ireland.

What are the food safety risks?

They can contain harmful microorganisms and chemicals so it's important to use them safely.

How can risk be reduced?

Risk can be reduced by:

a. Knowing the source, type and treatment of organic fertilisers before use including:
   - Avoiding the use of organic fertilisers from unapproved external suppliers
   - Avoiding the use of poultry litter on land used for fresh produce
   - Knowing the treatment and management the organic fertilisers have received before use

b. Not using biosolids on land used for fresh produce

c. Not collecting or land spreading sewage sludge from household septic tanks on land used for fresh produce. Septic tank waste is untreated and can spread human diseases

d. Treating organic fertilisers to reduce numbers of harmful microorganisms by:
    - Storing as a batch for three to six months before use
    - Composting
    - Aerating
    - Adding lime
e. Only apply organic fertilisers to soil before planting the crop
f. Leaving an interval between use of organic fertilisers and fresh produce planting. An interval of at least 120 days is generally accepted as good practice, but this will vary depending on the nature of the organic fertiliser
g. Never applying organic fertilisers (treated or untreated) to a growing crop

h. Considering the method, timing and rate of applying organic fertilisers
i. Protecting water supplies from contamination with organic fertilisers
j. Keeping records of all fertiliser applications which will include:
    - Type of fertiliser applied
    - Composting method (if applicable)
    - Fields receiving application
    - Date of application
    - Rate of application (quantity per hectare)
    - Method of application
    - What fresh produce crops are planted in the field

Note: *All farmers must manage manure and slurry according to the Good Agricultural Practice for Protection of Waters Regulations, 2014 (S.I. No. 31 of 2014) to help reduce water pollution by nitrates, but it will also reduce risk of water supplies being contaminated with harmful microorganisms.*

4. Use Pesticides Safely

What are the food safety risks?

Contamination of fresh produce with pesticide residues above the legal limits

How can risk be reduced?

Risk can be reduced by:

a. Only using pesticides authorised by the Pesticides Control Division of the Department of Agriculture, Food and the Marine
b. Minimising where possible, the use of all pesticides
c. Only applying pesticides if appropriate training and equipment is provided
d. Always reading and following the instructions for use of pesticides
e. Recording all pesticide use
f. Ensuring appropriate storage and disposal of pesticides

5. Source and Use a Safe Water Supply

Water is used for many activities by growers, including irrigation, application of pesticides, cooling, cleaning, washing and rinsing. Therefore, the risk of contamination from water can potentially be very high.

What are the food safety risks?

Contamination of fresh produce with a wide variety of harmful microorganisms and chemicals

How can risk be reduced?

Risk can be reduced by:

a. Knowing your water source and assessing its vulnerability to contamination
b. Ensuring that all water storage tanks are covered to prevent contamination
c. Ensuring water sources are protected from contamination by animals
d. If the water source is a private well, ensuring it is located away from contamination sources is constructed to prevent contamination and is well maintained

e. Using and referring to the Institute of Geologists of Ireland (IGI) guidelines for drilling wells for private water supplies
f. Using and referring to the Environmental Protection Agency (EPA) guidance on protecting your private well
g. Using a hydrogeologist before constructing a well or borehole
h. Getting professional advice before purchasing/installing water treatment systems
i. If storing farm manures, ensure there are no leaks or spillage and that they are located downhill from the water source to minimise contamination
j. Where possible, avoiding the use of high-risk water sources, such as poorly stored rainwater, untreated wastewaters and surface waters from rivers and lakes
k. Only using drinking water, e.g. irrigation, during the last two weeks before harvest for fresh produce that is usually eaten raw or uncooked
l. Only using drinking water for any final washing and rinsing of fresh produce

m. Only using drinking water for cooling of fresh produce
n. Ensuring water is tested regularly to ensure it is of a sufficient quality to be used for its intended purpose, e.g. presence of *E. coli* in water used for irrigation
o. Controlling the risk of water contamination by using good farm practices

6. Use Good Harvesting and Post-Harvest Practices

What are the food safety risks?

Harvesting and post-harvest practices are varied but have the potential to contaminate fresh produce with harmful microorganisms, chemicals and materials such as fuel, oil and plastics.

How can risk be reduced?

Risk can be reduced by:

a. Having and following cleaning schedules for equipment, tools, containers, storage areas etc
b. Having post cleaning hygiene inspections to verify cleaning

c. Having daily start-up checks for cleanliness
d. Ensuring that someone on the farm has responsibility for cleaning
e. Removing excess soil from fresh produce before it leaves the field
f. Avoiding the placing of storage equipment, e.g. crates, directly onto soil in the field
g. Ensuring the collection and disposal of waste materials by approved waste hauliers
h. Ensuring vehicles, i.e. trailers, used to transport fresh produce are used for just that purpose
i. Ensuring buildings and storage areas are designed and constructed to minimise access by pests and contamination of fresh produce
j. Storing packaging materials separately to prevent damage and contamination

7. Train Staff and Provide Good Staff Facilities

What are the food safety risks?

Staff involved in harvesting and post-harvesting practices can contaminate fresh produce with harmful microorganisms.

How can risk be reduced?

Risk can be reduced by:

a. Ensuring that all staff before beginning work (including temporary staff), complete a medical questionnaire or be passed as fit to work with food by a medical doctor. While this is just a snapshot in time, it helps staff understand the importance of not handling fresh produce when ill
b. Providing staff with basic training in personal hygiene, including effective hand-washing

c. Ensuring all staff have access to appropriate protective equipment, flush toilets and hand-washing facilities with running water adjacent or close to their work area, i.e. within a five minute walk of the work area
d. Providing hand-washing facilities which include the provision of hot water, i.e. typically water at 38-40°C, preferably with hands-free operation, liquid soap, single-use towels or hand driers
e. Avoiding the use of portable toilets except in situations where staff access to toilets is limited due to the logistics of harvesting, e.g. field grown crops
f. Ensuring staff suspected or known to be ill do not handle fresh produce
g. Ensuring staff report any illness to employers and are excluded from work for an agreed period based on medical advice

8. Have a System of Traceability and Recall

All growers must establish a traceability system that can effectively identify and remove unsafe food from the market in the event of a food safety incident occurring. The traceability system used by the grower must:

a. Be documented, on-file and accessible to other businesses, customers and the competent authorities
b. Include records/information of all raw materials and services, e.g. seed, packaging, water, chemicals, etc., back to the suppliers and forward to customers, i.e. if supplying fresh produce to another business. Records/information will include, but are not restricted to, the following:
    - Names and addresses of suppliers
    - Nature of raw materials and services supplied
    - Dates of the transaction/deliveries
    - Supplier batch codes/lot numbers
    - Size of the delivery

- Delivery records, e.g. invoices, delivery dockets etc.
- Pesticide application records

c. Distinguish between and include fresh produce from other growers if supplied, e.g. growers may supplement their output to ensure continuity of supply throughout the season or supply other fresh produce items which they don't grow themselves
d. Include a documented recall/withdrawal procedure, on file and accessible to other businesses, customers and the competent authorities. The recall procedure should be tested on a regular basis (at least annually) to ensure it operates effectively.

Further Information

- Food Safety Authority of Ireland (2016) Guidance Note No. 31 on Fresh Produce Safety in Primary Production in Ireland
- Food Safety Authority of Ireland (2013) Guidance Note 10 (Rev. 3) on Food Recall and Traceability https://www.fsai.ie/publications_guidancenote10_recall/
- Institute of Geologists of Ireland (2007) Guidelines for Drilling Wells for Private Water Supplies. http://www.igi.ie/publications/codes-guidelines.htm
- Environmental Protection Agency (2014) Protecting Your Private Well http://www.epa.ie/water/dw/hhinfo/protprivwell/
- Department of Agriculture Food and the Marine (2016) Food Producer Registration Forms and Information: Fruit, Vegetables and Mushrooms http://www.agriculture.gov.ie/farmingsectors/horticulture/
- Soil Geochemical Atlas of Ireland http://erc.epa.ie/safer/iso19115/display?isoID=105
- Irish Soil Information System http://gis.teagasc.ie/soils/
- National Soils Database https://data.gov.ie/dataset/national-soils-database

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