



## Chapter 3

### Setting Up the Processing Unit

#### 3.1 Finding Suitable Processing Premises

- 3.1.1 Building Practicalities
- 3.1.2 Building Costs

#### 3.2 Processing Equipment

#### 3.3 Layout and Flow

- 3.3.1 Inventory Items
- 3.3.2 Recycling and Waste

#### 3.4 Legal Requirements

- 3.4.1 Health & Safety Documentation and Policies
- 3.4.2 Food Hygiene Documentation and Procedures

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**[Link to Chapter 03 Grown in Totnes Case Study](#)**



Setting up a grain processing facility is likely to be a significant investment of both time and money, especially if you don't have access to farm buildings. If the building itself is not suitable then this can cause expensive problems down the line. Property considerations range from damp, to pests, access and type of electricity supply.

The second phase of set-up involves the selection, procurement and installation of crop processing equipment, and considering the work flow of activity in the unit. Aside from the processing machinery there are many smaller items - such as scoops or tubs - which are helpful for processing. Finally in order to sell foodstuffs, especially under organic certification, you have to get your paperwork in order. Here are things to consider as you choose and design your space.

### 3.1 Finding Suitable Processing Premises

#### 3.1.1 Building Practicalities

NB This section looks at the premises required for crop processing into food grade products, such as polishing, flaking, milling and sieving. It assumes that crops have already been cleaned, dried and - where necessary - dehulled, as these post-harvest processes have different requirements. ([See Chapter 5 - Care of the Crops](#))

- Floor is level
- Building is dry
- Building is rodent-proof
- There is sufficient natural light
- There is good airflow and ideally, the building is south facing - useful factors if you plan to dry crops in the unit
- There is good vehicular access for larger vehicles, including tractors and trailers, and sufficient space for turning

- Parking facilities are adequate
- Roof and doors are high enough for forklift access
- Will there be enough room to move crops around inside the premises? e.g. by forklift
- Consider suitability of premises for housing crop handling equipment and the flow of crops between processing machinery in the space
- Does it have three-phase electricity? Does your milling equipment require it (likely!)?

### 3.1.2 Building Costs

- Check what rates the building is likely to incur and if there might be reductions you are eligible for (but do not count on it). Check your local council's website for information  
[Find and check your business rates valuation](#)
- What will you pay for utilities?
- What is the rent?
- Consider proximity to your customers, potential staff, volunteers and community. (See [7.4 - Distributing Your Products to Your Customers](#))
- How close are your neighbours? Will they be affected by noise?
  - [Noise at work](#) (See 'Do I have a noise problem?')
  - [Noise: Noise reduction - Workplace Design](#)
- Do you need to install dust extraction in the building? Where will it go?
- How will your work and crops flow between different areas? e.g. bulk storage, to processing, to bagging, to storage of finished product etc
- Will the premises meet Health & Safety requirements? e.g. sufficient sinks for hand washing provision and a sufficient number of doors to separate the working area from the toilet area etc
  - Food Standards
    - [www.food.gov.uk/print/pdf/node/1384](http://www.food.gov.uk/print/pdf/node/1384)
    - [www.food.gov.uk/print/pdf/node/219](http://www.food.gov.uk/print/pdf/node/219)

- [www.food.gov.uk/business-guidance/safer-food-better-business-for-retailers](http://www.food.gov.uk/business-guidance/safer-food-better-business-for-retailers)
- HACCP
  - [Hazard Analysis and Critical Control Point \(HACCP\)](#)
- Organic Standards
  - Soil Association: [Soil Association Standards Food and drink](#)
  - Organic Farmers and Growers: [Download organic certification documents, record sheets, forms](#)

How easy is it to clean your premises, considering the type of cleaning required post processing. Does it meet food standard requirements?

[Back to the menu](#)

### 3.2 Processing Equipment

Your **dehuller** is best sited on a farm. It is a dirty process and should be kept away from food processing activities. It needs a winnower with it to remove the chaff and separate out the hulled from dehulled grains

A **cyclone** is required if you are dehulling grains without an outside outlet; it sucks up the chaff and allows space to expel its kinetic energy

A **polisher** uses a series of brushes to remove residual dust and dirt from grains prior to processing, an important aspect of maintaining food hygiene. It will remove grain mites and their eggs.

An **aspirator** collects the expelled dust etc during polishing

**Stone mill\*** typically used for milling wheat but depending on the type may be suitable for other grains and even pulses. Wheat should be 14% moisture and, if making white flour, should be dampened to loosen the bran. The stones are adjusted to vary the coarseness of flour and the distance they are set to is critical. Too close and the stones will burn and overheat, damaging the stones and overheating the grain; too far apart and your flour will be too coarse, or only partially milled. In order to maximise the health benefits of the freshly milled grain there is a balance in play between the speed of milling and the coolness of the grain. It is imperative to keep the flour as cool as possible during milling

**Flaker** - this is used to make flakes such as oat flakes (ie jumbo oats), barley flakes or wheat flakes. Depending on the grain type it will be necessary to dampen the grain first to stop it

fracturing and breaking the flakes (this applies to wheat but not oats)

A **sieve** is necessary to remove any chaff particles and the coarsest bran. This doesn't count as extraction but is good practice to create a quality wholemeal flour. Other sieve sizes can be used to extract more bran and create white flour

A **bagging machine** can create a lot of flour dust. Depending on the scale of your operation, hand-bagging may be the best option, but for pulses and grains they can be very useful

Consider where the machine manufacturer is based with regards to: potential language barriers, understanding the machine manuals, transport costs and carbon footprint as well as import costs

\* Denotes items featured in the [Glossary - Chapter 11](#)

[Back to the menu](#)

## 3.3 Layout and Flow

### 3.3.1 From Farm to Customer

See individual case studies as this will vary depending on your set up

### 3.3.2 Layout of Processing Premises

See individual case studies as this will vary depending on your needs

### 3.3.3 Inventory Items

#### 1. Crop Storage Requirement

- Crop silo
- Crop dumpy sack
- Pallet racking
- Pallets
- Crop drying spikes

#### 2. Crop Movement Equipment

- Auger
- Trugs
- Trolley
- Sack trolley
- Forklift

#### 3. Furniture

- Table
- Chair
- Filing cabinet
- Shelving for end products

#### 4. Sundries

- Sink
- Mugs
- Kettle
- Trade approved weighing scales\*
- Packaging for final product
- 1kg & 500g flour scoop

#### 6. Tools

- Ratchet and socket set
- Small claw hammer
- Promotional leaflets
- Pens
- Invoices
- Whiteboard
- Stock records
- Cash box
- Scissors
- Stapler

#### 7. Pest Control

- Mouse traps
- Bait boxes
- Mice poison
- Insect monitors

#### 8. Sources

- Freecycle
- Community connections
- Neighbours
- Facebook & other social media
- Business links
- Refurnish

#### 9. Office Area

Water spray bottle

#### 5. H&S

First aid kit

Dust masks

Ear defenders

Chair

Table

Filing cabinet

Files

### 3.3.4 Recycling and Waste

Find ways to put crops which are not fit for human consumption, or by-products of processing to use, e.g. contact your local “pig man” to take it for animal feed

Ensure you have the necessary recycling systems in place to divert materials from landfill, e.g plastic, metal, paper and card. Enlist a waste collection contractor where necessary

Endeavour to compost all suitable material which cannot continue in a food supply chain for humans or animals

\* Denotes items featured in the [Glossary - Chapter 11](#)

[Back to the menu](#)

## 3.4 Legal Requirements

In order to ensure that your premises and processing activities meet legal and professional requirements you will need to consider and document your policies and provisions for health and safety and food hygiene.

As part of food hygiene policy food processors are expected to demonstrate that they have identified and made plans for their Hazard Analysis and Critical Control Points; HACCP.

### 3.4.1 Health & Safety Documentation and Policies

Design the layout of your processing premises to enable the natural flow of grains between sequential processes to minimise the effort of grain handling

Complete risk assessments for your crop processing activities

Conduct the relevant health and safety training with any staff and volunteers

Create a volunteer policy if accepting volunteers

Ensure there are adequate first aid equipment and trained personnel on site at all times

Create a fire risk assessment

[Gov.UK.workplace-fire-safety](https://www.gov.uk/workplace-fire-safety)

[HSE.Gov.UK.Fire toolkit](https://www.hse.gov.uk/fire/toolkit)

Purchase and correctly site the appropriate fire extinguishers

[Fire protection shop co.uk](https://www.fireprotectionshop.co.uk)

Get appropriate insurance cover, including public and product liability insurance and employer's insurance as relevant

Familiarise yourself with up to date and relevant legislation and requirements through the Government's Health and Safety Executive website

- [Workplace \(Health, Safety and Welfare\) Regulations 1992 - Approved Code of Practice and guidance](#)
- [Safe use of work equipment](#)
- [Provision and Use of Work Equipment Regulations 1998](#)
- [Manual handling Operations Regulations 1992 - Guidance](#)
- [Health and safety made simple](#)
- [The basics for your business](#)


Purchase/make and install any necessary Health & Safety signage

### 3.4.2 Food Hygiene Documentation and procedures

Create a Hazard Analysis and Critical Control Point (HACCP) Document and train your team in its use

[Link to gov website guidance on HACCP](#)



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- Create a system for tracing your raw ingredients from farm to customer to ensure you can recall your final product if necessary and trace the source of the problem, as well as increasing customer confidence
  - Create and install machine use recording systems and cleaning records, to avoid cross contamination between crops being processed and to monitor the cleaning regime
  - Create and adhere to a cleaning regime for the entire processing site, accounting for and recording how each area is cleaned and with what frequency
  - Control hazards, e.g. ban glass from the premises or processing area to eliminate chances of product contamination with broken glass
  - Create a policy on personnel illness to maintain food hygiene
  - If equipment cannot be taken apart for thorough cleaning, e.g when transitioning between organic and non-organic crops, understand and institute the practice of purging the machines, by discarding the quantity of crop that it takes at the beginning of processing to clear residue from previous processing. In order to meet organic standards there should be written procedures and checklists to ensure the process is controlled and recorded
  - If working towards organic certification of your products, understand and institute the particular requirements of your chosen certification body
  - Control the hazard of allergen contamination of your products by banning them from the premises or clearly stating on your packaging which allergens are processed on site
  - Identify potential pests and install control measures and monitoring systems, documenting the methods and frequency of checks. Ensure pest control is done in a way that does not risk product contamination

[Back to the menu](#)