

MUSHROOM PRODUCTION

The Irish mushroom industry

There are many edible mushroom species that can be grown commercially, but in Ireland the white button mushroom (*Agaricus bisporus*) is almost exclusively grown. Production in Ireland is fairly steady at around 68,000 tonnes per year, 80% of which is exported to the UK, and 20% is supplying the Irish market. There are approximately 34 growers producing on 40 farms in Ireland. The industry employs 3,500 people. The number of growers and production units has declined over the past decade as small farms ceased

production, while larger farms continued to expand to ensure they remained sustainable. The Irish industry is based on a satellite grower system, whereby growers are linked into a small number of mushroom substrate producers and marketing companies. The substrate is delivered to the grower's production units. The mushrooms are grown, then handpicked into punnets, collected by the marketing company, graded and packed at the packhouse and prepared for distribution.

Setting up a commercial mushroom enterprise

- Significant capital investment is required, the average cost per mushroom tunnel is €200K.
- A skilled labour force is needed to harvest mushrooms.
- Access to markets to distribute mushrooms is essential.
- Technical mushroom growing knowledge and human resources (HR) skills are required.
- To gain access to markets, growers need to have quality assurance (QA) certification.



Growing process

Mushroom growing is a very technical process and attention to detail is crucial. Mushrooms are grown on a shelf system in purpose-built growing rooms, where the growing environment is computer controlled to give constant temperatures of between 18°C and 25°C, and 90-95% relative humidity. The filling of the shelves with substrate is automated. This system gives optimal uniformity for growth. A layer of casing soil (black peat mixed with lime) is applied over the substrate.

The casing soil acts as a water reservoir and aids the growth of mushrooms. It usually takes six weeks from when the substrate is filled until the crop is finished. During this period, the crop will produce three flushes (crops) of mushrooms. About 75% of mushrooms grown in Ireland are the traditional white mushroom variety, with the remaining 25% being brown varieties. Yields vary depending on mushroom type, size of mushroom picked (button, cup or flat), grower capability, air handling facilities, quality of operations, and number of flushes taken.

Mushroom Production

Recruiting skilled labour



It can be difficult to get the skilled labour required for mushroom production.

Mushroom production is very labour intensive. Operational, harvesting and management/supervisory staff are all required to operate a mushroom production facility. An experienced harvester will pick one tonne of mushrooms per week. To get a harvester to this level of efficiency requires up to 12 weeks of training and supervision. Mushrooms are sensitive to

damage, but an experienced picker can harvest them not only quickly but also carefully. Recruiting and retaining staff is huge challenge for the sector as the majority of staff employed are foreign nationals. Mushroom growing is a very professional business and growers need to possess QA, HR management, and compliance management skills.

Speciality mushroom production



Speciality mushrooms grown in Ireland are usually shiitake or oyster.

There is a small quantity of speciality mushrooms grown in Ireland, the most common being shiitake and oyster. This is due to the low demand for these value-added

products in Ireland, and cheaper costs of production in Europe, where demand is higher. They grow on sterilised straw- or sawdust-based blocks or 'logs'.

Mushroom spawn companies sell a wide variety of different mushroom strains known as 'spawn'. Growers can prepare their own substrates and inoculate them with spawn, which requires a high level of technical skill and equipment. Pre-colonised substrates to grow these products are currently being imported from the Netherlands, which results in a very high cost of production. Teagasc does not have expertise in production systems for speciality mushrooms.

Financial investment

The average size of a mushroom farm in Ireland is 12 mushroom growing units filled with 100 tonnes of substrate per week. This is considered to be the minimum size required for the business to be economically sustainable. To construct a farm of this size would require a significant investment of over €2m. This investment includes ground works, concrete apron, tunnel structure, air handling equipment, shelving, all operational equipment (filling machine, emptying equipment, picking trolleys, etc.), and canteen/office facilities. There is also a significant upfront cost required to start producing for compost, casing, labour, packaging and energy.

Market access

The Irish and UK market demands an exceptionally high quality of mushroom. A small number of producers supply the Irish market, with the majority of growers supplying the UK market through marketing companies. These marketing companies are supplying the large supermarkets. Irish mushroom growers are competing for market share in the UK against British, Dutch and Polish growers. The market is saturated and there is little opportunity to gain market access, with existing growers reluctant to increase capacity. A new entrant to the sector would require the capacity to market their own product, which is challenging, or have a relationship with a consolidator who has market access. Another factor is fluctuations in the Sterling exchange rate, as this has a huge bearing on a grower's farm gate price.

Further information

For further information please contact Donal Gernon, Mushroom Advisor at:
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The following resources are also helpful:

- www.teagasc.ie/crops/horticulture/mushrooms/
- www.teagasc.ie/crops/horticulture/mushrooms/advice/
- www.teagasc.ie/crops/horticulture/mushrooms/mushroom-newsletters/

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