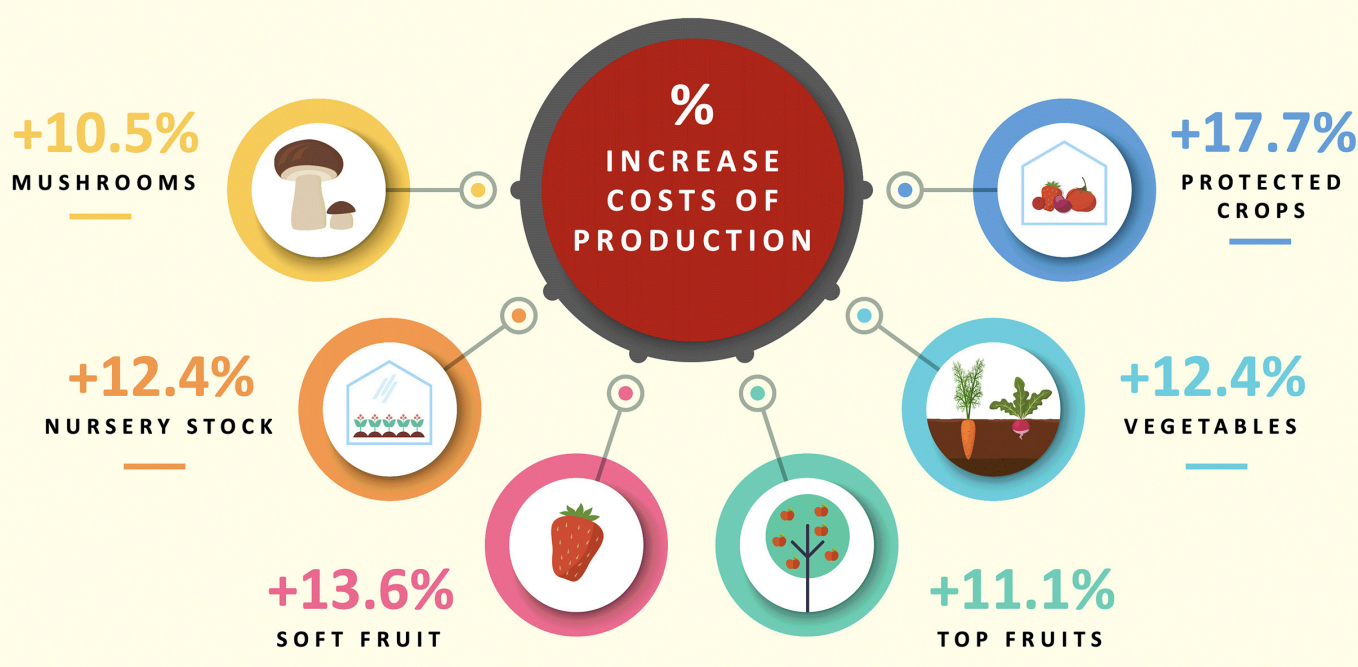


Horticulture Input Costs 2021 – Impact Assessment

Irish horticultural producers provide local, fresh, top quality produce and plant material to the retail market. Horticulture production input costs have risen significantly in 2021, mostly due to external macroeconomic factors. Based on information collated and referenced by Teagasc Horticulture Development Department, input cost increases will in many cases exceed grower margins. They will be unable to absorb increased costs, without an increase in what they are paid for their produce.

HORTICULTURE INPUT COSTS INCREASE 2020-2021



FACTORS DRIVING RISING COSTS

LABOUR	PACKAGING	ENERGY	FERTILISER	GROWING MEDIA/CASING	CROP PROTECTION PRODUCTS
--------	-----------	--------	------------	----------------------	--------------------------

Introduction

Key Objective

The key objective of this report is to surface facts about specific inputs cost increases, to apportion the relative importance of input costs to the different sectors of horticulture production arriving at average increases in costs of production in each sector for 2021. Finally, the report speaks to the current and potential impacts of very high input costs for primary producers now and for the 2022 season.

Background

Valued at €477m (farm gate value) horticulture is the fourth largest sector after dairy, beef and pigs in terms of gross agricultural commodity output value. Most Irish horticulture produce is consumed in the domestic market with only two sectors having significant export trade; mushrooms and amenity horticulture.

Employment in Horticulture is estimated at 6,600 full time in primary production with a further 11,000 employed in downstream businesses. Bord Bia have estimated total employment value of the horticulture industry delivered to the Irish economy in 2016 at €479m.

New national and international policy documents including the Programme for Government; Food Vision 2030; EU Farm to Fork and Biodiversity strategies including AgClimatise set ambitious targets and outline actions to reduce the impact of agriculture and its activities on the environment and climate and to reduce emissions. These new policies highlight possibilities for diversification and alternatives for land-use as options to mitigate climate change, providing opportunities for horticulture food and plant production. Horticulture is one of the most carbon efficient sectors and expanding the sector could contribute towards achieving carbon neutrality by 2050.

Food Vision 2030 states that: *“given current trends such as increased consumer demand for plant-based foods, dietary recommendations around increasing consumption of fruit and vegetables, increasingly challenging growing environments for horticultural crops in some countries due to climate change, and the need for Irish agriculture to diversify, opportunities exist to expand this important sector and these are likely to intensify over the period to 2030”.*

The operating environment for Irish horticulture producers has changed significantly in recent decades. Consolidation in grower numbers and the producer base has been the main feature. While there is an estimated 1,000 growers currently in commercial production, we estimate the top 250 growers and producers supply 85% of the output and are dealing with consolidators and Supermarket Central Distribution Centres (CDCs) directly. These supermarket multiples are responsible for over 90% of all fresh produce retail in Ireland.

Similar consolidation has occurred in the nursery stock and ornamentals sector where scale of production is now a prerequisite to deal with major retailers, large independent

garden centres and garden centre chains. While Brexit and the Covid-19 pandemic have negatively influenced input costs, labour availability and supply chains, demand for horticultural produce including food and plant material has never been higher.

In recent months, growers have seen unparalleled increases in costs of key inputs to the horticulture sector in Ireland. Considerable volatility remains as primary producers try to forward plan business for 2022 and manage cash flows. In an environment where cost planning is difficult, risk is increasing very significantly for primary producers.

Methodology

Across the various farm sectors, including horticulture, access to timely official data on input prices, remains a challenge across Ireland and the EU. Official data sources tend to lag behind the actual market situation by three months and more in some cases. It is therefore necessary to reference unofficial data sources, industry expertise and direct contact to form an up to date assessment of input prices. For many years, Teagasc has provided research and advisory support to the horticulture sector through its Horticulture Development Department. This advisory relationship is built on strong collaboration with key stakeholders in the industry. Through direct contact, we have assessed the real input cost increases across a myriad of inputs in the main horticulture sub-sectors. We have assessed the relative importance of inputs to sectors, and calculated percentage increases between 2020 and 2021 as quoted to growers during 2021. We have also directly engaged with companies supplying products and services to the sector.

Note: While every effort has been made to reflect the reality for a grower in a particular sector, it should be noted that there is significant variation in the shape and size of production facilities, product mix and average price. While averaging has been used to best express the increases in input costs, it may not accurately reflect the actual increases for specific growers or crops. For example, there are a range of protected crops averaged together, but some sectors e.g. tomato have a particular exposure to energy costs.

Key Inputs

Table 1: Relative importance of inputs as a percentage of total input costs

Horticulture Sector	Labour	Packaging	Fertiliser	*CPP	Energy	Compost/ Casing/ Growing Media	Other
Mushrooms	41.6%	6.8%	0.0%	2.0%	5.6%	37.1%	6.9%
Nursery stock	35.0%	8.0%	6.0%	6.0%	8.0%	5.0%	32.0%
Soft Fruit	40.0%	5.0%	5.0%	5.0%	12.5%	10.0%	22.5%
Top Fruit	44.3%	10.0%	3.0%	14.0%	4.0%	0.0%	24.7%
Vegetables	40.0%	5.0%	4.0%	6.0%	7.0%	0.0%	38.0%
Protected Crops	36.0%	13.0%	5.4%	6.0%	13.0%	4.2%	22.4%

(*CPP = crop protection products)

Labour

Labour is a key input in the horticulture sector and represents approximately 40% of total input costs for most sectors.

While the minimum wage rate increases annually, higher pay rates in the sector increase pro rata to maintain existing pay differentials between operatives, skilled and experienced workers. Business planning and cash flow forecasting for 2022 will reflect a 3% increase in minimum wage coming for January 2022. However recently, the labour supply situation to the sector has been particularly difficult and led to significant upward pressure on wages surpassing the actual increase in the minimum wage. Some of the sectors are reporting to us that rates have increased over 9% for general operatives and over 13% for skilled workers in 2021. There have also been increases in costs associated with advertising, recruitment and training over the period reflected in overall labour input increases in the range of 8% to 11% between 2020 and 2021.

Packaging

Packaging includes cardboard boxes and trays, polypropylene net bags, LDPE vegetable bags, PET & PP containers (Punnets/Trays), Polyethylene (PE) packaging, labels including metallic elements and foil. It also includes flow wraps, films, strapping, plastic outer crates and wooden pallets and bins.

We have found that the cost of the myriad of packaging products have all increased, some by as much as 70%. However, the average increases range from 20% to 40% depending on the mix and type of packaging required in a sector. While the pulp (cardboard)

products are up around 20%, supply shortages are apparent due to the increase in online shopping deliveries. Plastic based products in general are up significantly more as transport (European container costs up 25%) and energy prices have a more significant impact here. Our sources of information include growers, producer organisations who buy packaging centrally, and packaging suppliers themselves.

Fertiliser

Fertiliser prices are influenced by supply and demand in the market, but also reflect production costs, which are heavily related to energy prices. Energy prices started increasing in H1 of 2021, bringing fertiliser prices back up to 2019 price levels. During H2 of 2021, fertiliser has increased by over 200%. There is almost a trebling of some spot prices since 2020. The spot price for CAN was reported recently at €600/t. In the horticultural sector, fertiliser is an important input and controlled release fertiliser and liquid feed fertiliser are particularly affected. Trade stocks are tight currently and supply and demand dynamics continue to place pressure on price.

Energy

We have referenced data from growers on electricity costs and heating costs provided by oil, gas, biomass and the grid. Energy is a significant cost for many horticulture enterprises as crops are grown indoors in glasshouses and protected greenhouse structures. Electricity and fuel prices have soared over the past six months putting added cost pressure on all protected crop production. Many producers have switched from fossil fuel based (oil or gas) to more sustainable heating sources such as biomass, where possible in the recent decades which has mitigated some of the increases, but even biomass woodchip and pellet prices have increased. The exposure to energy cost inflation is dependent on crop type, whether contracts for electricity supply are used and whether biomass systems have been adopted or are possible. Glasshouse production is dependent on gas for heat and carbon dioxide supplementation and is particularly impacted. The Finance Act 2020 provided for annual increases in carbon tax of €7.50 per tonne, up to 2030. A further increase of €7.50 was announced in Budget 2022, from €33.50 to €41.00 per tonne of carbon dioxide emitted.

Casing/Growing Media

Against a backdrop of significantly reduced extraction of peat and reduced stocks of peat, peat based mushroom casing and horticultural growing media prices have increased significantly. Haulage increases have also added to price pressure. While stocks of professional grade peat based growing media served to supply a portion of the 2021 growing season requirements, these stocks do not exist for 2022 as there has been no peat harvest. Depending on sector and product, there are more increases expected for 2022.

Commentary by Sector

Table 2: Input cost inflation 2021 v 2020

Horticulture sector	Labour	Packaging	Fertiliser	*CPP	Energy	Compost/ Casing/ Growing Media	Other	% increase costs of production 2020-2021 (weighted)
Mushrooms	8.3%	22.0%	0.0%	41.0%	31.0%	6.0%	14.0%	10.48%
Nursery stock	7.0%	24.0%	33.0%	6.0%	17.8%	27.0%	10.0%	12.40%
Soft Fruit	8.0%	20.0%	30.0%	15.0%	27.6%	12.0%	10.0%	13.60%
Top Fruit	9.0%	30.0%	40.0%	18.0%	20.0%	0.0%	10.0%	11.10%
Vegetables	11.0%	20.0%	39.0%	17.0%	25.0%	0.0%	7.0%	12.40%
Protected Crops	7.0%	26.0%	33.0%	7.3%	60.0%	20.0%	10.0%	17.70%

(*CPP = crop protection products)

Mushroom Sector

The Irish mushroom industry is the largest horticulture sector in Ireland with a farm gate value of €123 million in 2020. Over 85% of the mushrooms produced in Ireland are exported to the UK where they compete with Dutch and Polish supplies, the remaining 15% being sold in the Irish market. The industry directly employs 3,221 people with many more employed indirectly in areas such as production, distribution and marketing. Mushroom production is continuous throughout the year.

From a **labour** perspective, the mushroom sector is a highly intensive. Labour currently accounts for 41.6% of total cost of production on mushroom farms and has increased by 8.3% in the reference period. With the national minimum wage set to increase further in 2022, additional upward pressure on labour costs is expected.

Mushroom compost and **casing** account for 37.1% of the overall cost of production. Peat based mushroom 'casing', is applied to the surface of mushroom crops to stimulate mushroom production. It is an important and essential component in the mushroom growing process currently. We are recording price increases in this important input at 30%.

Mushroom **packaging** represents 6.8% of all input costs. It has increased sharply (22%) over the past 12 months, and further increases are expected in 2022. **CPP** have increased significantly, driven by sharp increases in disposable gloves and suits (+120% and +191%) since the start of the pandemic.

Energy is a significant cost for mushroom growers as crops are grown indoors year round with heating and cooling systems utilised. While a large number of producers have invested in renewable technologies such as solar PV and biomass boilers with the aim of reducing their energy cost and carbon footprint, the increase in electricity and fuel costs of 30.9% over the past 6 months is taking a significant toll on the bottom line.

The impact of rising costs has eroded profit margin, grower confidence, investment confidence and could lead to some contraction in the sector.

Soft Fruit

The soft fruit industry in Ireland is currently valued at approximately €50 million. The largest of the soft fruit crops grown is strawberries. This crop represents about 90 percent of the total soft fruit crops grown with an annual harvest of 9,000 tonnes of fruit. The largest production takes place in Leinster with counties Wexford, Meath and Dublin being the largest producers.

Labour is the biggest production cost. This accounts for at least 40 percent of the total production cost on each farm. Competition in sourcing workers is increasing, and is leading to higher wage price inflation.

Plant material is the second biggest cost for soft fruit production. All of the plants are imported primarily from the Netherlands. Strawberry plants for example make up approximately 25 percent of the costs of production. The price of plants is due to increase by at least 10 percent in 2022.

Energy is used in modern glasshouse production of strawberry production for season extension on the shoulders of the season, which now runs from February to November. Heating costs have increased by 27.6%. It makes up approximately 12.5% percent of the total costs of production. Gas (natural & liquid) prices have gone up as much as 170% in recent months. These costs cannot be absorbed and are likely to lead to a significant reduction and/or cessation of both early and late production. Other sector specific costs like **packaging** (up 20%), **growing media** (up 12%), and **fertiliser** (up 30%) are important inputs which are the backbone of the production system.

Protected crops

The protected crops sector includes a range of edible crops grown in greenhouse structures where controlled environments are required for crop production. Input costs vary significantly between crops. Tomatoes, cucumbers and peppers are grown in a heated and air conditioned environment in soil-less growing media (coir, peat or rockwool). Lettuce is frequently grown in the soil under glass in an ambient temperature or 'cold glass' as referred to in the sector. Some heat is applied in other lettuce growing contexts. There are however, exceptions to this and averaging across the protected crop sector can unfortunately mask specific spikes in input costs, for specific production systems and producers.

Tomatoes

This sector has significant exposure to the increase in **gas price**. The sector is dependent on gas for heat and carbon dioxide. Supplemental carbon dioxide is critical for optimal plant growth and performance in modern high wire crop production (e.g. Tomatoes, Cucumbers). While the sharp increase in gas price occurred mid-year 2021, and **increases of around 170% in unit gas price** have been recorded, if the current price remains for a full 2022 season, it will represent an effective **trebling** of this input cost. **Carbon tax** increases have also had an inflationary impact on gas price for this sector and further increases are expected. **Labour** is a key cost for this sector and as with other horticultural sectors labour costs are up in 2021 by 8%. The competitive nature of the labour market in 2021 has been challenging and costly. **Coir** has become very expensive and some growers are reverting to Rockwool growing media. There will be significant impact on the profitability of glasshouse growing which is dependent on gas for heat and carbon dioxide. Producers in Ireland and across Europe will likely cut back production by avoiding growing at the shoulders (beginning and end) of the season when it is most expensive due to gas input requirement. There is also a concern that an oversupply will occur in the middle of next season as producers across Europe schedule all their production into a tighter window, meaning the price of tomatoes may be impacted, by over production in the middle of the season.

Lettuce

The protected lettuce sector has endured a range of input price increases and input supply issues. **Peat, seed, packaging, labour, energy, fertiliser and crop protection products** are the main inputs that have risen significantly. Peat makes up 9% of lettuce growers input costs and this input has risen in price by 35% for this sector. Growers are relying on new lettuce varieties as part of their pest and disease control strategy, however this input has also increased by 30%. **Seed** makes up 20% of the input cost for lettuce meaning that this increase puts further pressure on viability in a sector that operates around extremely tight margins. Protected lettuce production is **labour** intensive and is highly exposed to competitive forces in the labour market.

Vegetable Sector

The vegetable sector is exposed to several input price increases, chief among them labour, packaging and fertiliser. The impact on overall costs of production are very significant, in the order of 12.4% for 2021. The vegetable sector is very **labour** intensive, particularly for crops that need to be harvested and graded by hand. Labour is the most significant cost in vegetable crops accounting for an average of 40% of the cost of production. Labour costs are up by 11% across general operatives and other skilled labour such as tractor drivers. Labour availability is at a point of crisis with many businesses unable to source sufficient labour to meet the needs of the business. The seasonality of the vegetable sector means that businesses find it increasingly difficult to compete in the labour market, resulting in an increased cost of labour as they attempt to attract staff by offering increased pay. In this particular context the current level of returns to the sector are unsustainable. Primary producers do not have capacity to absorb current input cost increases.

Fertiliser is a key component of field vegetable production and costs of major elements such as Phosphorus (P) and Potassium (K) have doubled in the past few months and alarmingly recent days have seen a doubling in the cost of nitrogen. Calcium Ammonium Nitrogen (CAN), which is widely used in vegetable crop production, is €600/t up from €290/t in August. Compounds like 10-10-20 are running around €900/t to €1000/t. On average fertiliser has increased between 35% and 100% in price/cost and there continues to be high volatility in the fertiliser market at the moment with the fertiliser industry in Ireland unsure where the market will settle in early spring 2022, when most fertiliser is purchased.

Depending on the vegetable product, a wide range of plastic and paper **packaging** including bags, punnets, netting, bags and boxes have seen unprecedented levels of cost increases. Plastic raw materials have increased very significantly. Generally, an average of 20% - 25% increase in cost is common amongst suppliers.

Energy (electricity and fuel) is a key input costs on vegetable farms, up 25-30%. Refrigerated facilities are required to hold certain vegetable lines for long-term storage to aid in the continuity of supply into the spring months before new product becomes available.

Vegetable growers operate in a highly competitive market. Management of **cash flow** for vegetable businesses is critical. It is likely that some growers will cut back on production in order to manage their cash flow, as current cash flow cannot absorb increased costs to manage similar acreages to last year. Some growers have already cut back due to availability of labour; additional cutbacks may be warranted to minimise exposure to further cost hikes, and manage cash flow up to harvest 2022.

Risk for the vegetable sector can be summarised as;

1. Cash flow management is a risk for primary producers.
2. Risk that reduced profitability or significant losses could be incurred, with the associated economic consequences for business viability, employment and local economies.
3. Risk of shortfalls across Irish vegetable lines due to a decrease in the area of vegetables planted in Ireland for 2022 season.
4. Risk that there will be increases in imported vegetables.

Nursery Stock & Ornamental Sector

There are four distinct subsectors of the ornamental sector: young plant propagation, hardy nursery stock, field production of trees and hedging and protected production of bedding and pot plants.

Young plant material

Because of increased demand and contraction of supply in some lines, there has been a range of increases in costs of starting material. Bedding and protected ornamental plants have seen a 6% rise in plug costs; a low value plug tray has risen from €16 to €17 (+6.25%). Young shrubs have seen a rise of c. 29% and bare root trees a price rise of between 14% and 25% depending size and species. There is a significant shortage of young plant tree and shrub material, many lines are sold out for winter 2021/22 and orders are being taken for 2023 supply. Due to the slow development of trees there will be no supply relief in the immediate future. Growers of semi-mature trees have a lead in time of between 1 and 5 years before their trees are ready for sale. As a result, growers are eliminating high cost lines e.g. cutting raised material in favour of less expensive seed raised plants. Ultimately the consumer will have less choice of plants and reduced range from Irish suppliers. Growers of semi mature trees have significant capital investments in new stock material, the greatest risk in this sector will be a shortage of labour for cultivation management and harvesting.

Labour

Increased costs of labour have been in line with other horticultural sectors. The labour intensive field production sector where automation is limited and working conditions (winter and outdoors) are difficult have seen recruitment difficulties. The ongoing lack of skilled propagators also limits development of the sector. It takes at least one year for a suitable person to achieve commercial propagation rates for preparing cutting material. The cost of the year long lead in time impacts productivity and costs. Finding

suitable people to train is a more common difficulty. Growers report they cannot expand to take advantage of the strong market, as they cannot staff the increased production. Currently, there are less than twenty active 'budders' and 'grafters' in Ireland who produce young ornamental trees.

The impact is that growers are restricting their production area to the staff capacity they have, they are not able to expand their production to meet increasing demand and take advantage of our suitable climate. There is a very limited volume of young ornamental trees being propagated.

Energy

For protected production of bedding and pot plants, heating costs have risen significantly for those using natural gas. The key heated ornamental crop is Poinsettias with production running from July to December.

The impact is that growers will limit their need for heat once they have finished the crops they are contracted to produce e.g. Poinsettias for Christmas. Lines which have a high heat demand will be substituted for hardier lower value lines.

Transport

The cost of logistics has risen 18.5% due to the surcharge for the transport of trolleys applied (by the only dedicated haulier for the sector). The cost of transport between Ireland, UK and Netherlands has increased; shipping a trolley from Netherlands to Ireland has been reported to cost €162 an increase of 15% in the last year. There are additional administration charges for any shipment to or through UK e.g. increase of 140% from €50- to €120 per consignment. Fertiliser carriage from UK must now pay an administration charge of €250 per shipments.

Growers have had to absorb the increased costs as trade normally includes delivery for commercial orders. Any increases in delivery charges after prices are agreed affect the supplier's margin.

Acknowledgements

We would like to acknowledge the support shown by way of data provision from growers, agronomists, service suppliers, and producer organisations in the horticultural sector.

This report has been produced by the Horticulture Development Department, Teagasc, Ashtown, Dublin 15, Ireland | D15 KN3K.

For more information on the contents of this report, contact Mr Dermot Callaghan at dermot.callaghan@teagasc.ie or at Horticulture Development Department, Teagasc, Ashtown, Dublin 15, Ireland | D15 KN3K.