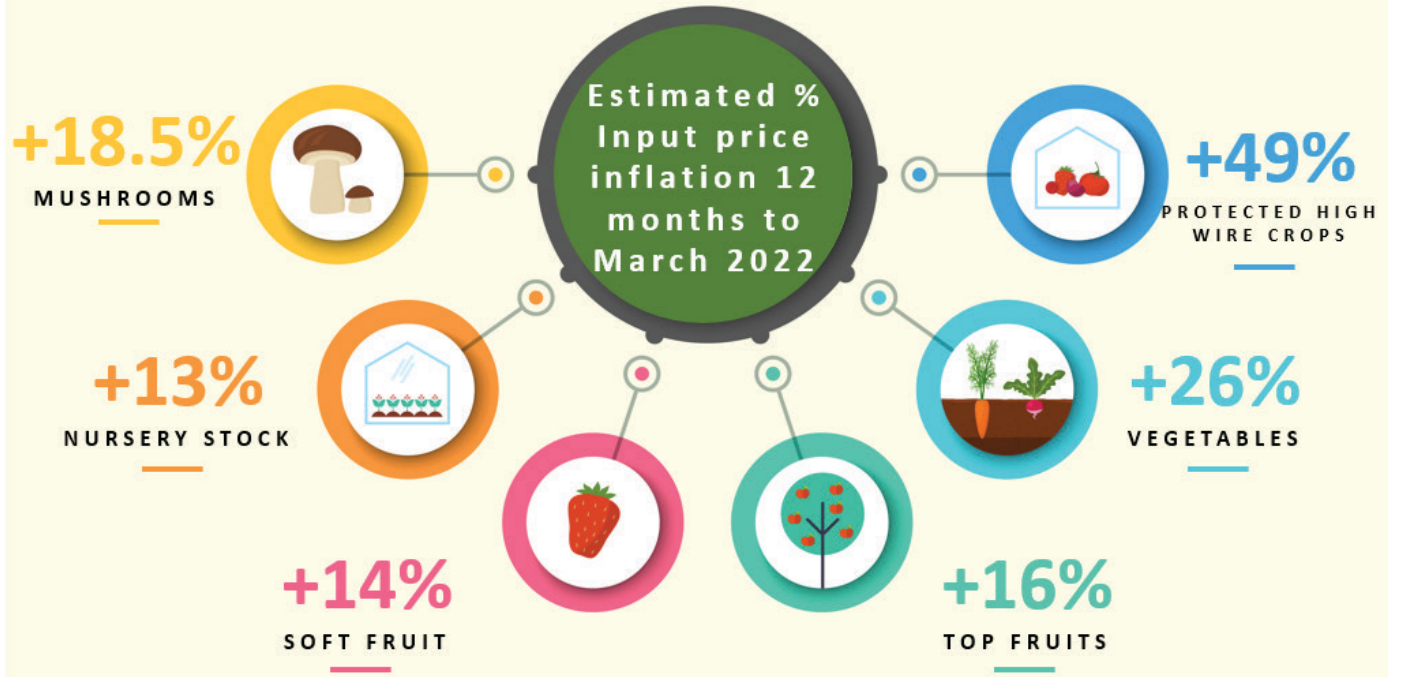
Agriculture and Food Development Authority

Horticulture Development Department

Horticulture Crop Input Price Inflation 2022

Horticulture crop input prices have risen significantly in the past twelve months since March 2021, initially due to external macroeconomic factors, but more recently due to the invasion of Ukraine. We have revised the figures on input price inflation first reported in November 2021, to reflect the full extent of inflation in the past twelve months up to March 31st, 2022. While primary producers for the most part have received some retail price increases in the last twelve months, the recent rapid pace of inflation means that achieving a margin over costs for many horticultural enterprises in 2022 is becoming more challenging. A market response will be required to ensure the viability of an industry that puts local, fresh, top quality produce, on the supermarket shelf.

12 MONTH INPUT PRICE INFLATION



FACTORS DRIVING RISING COSTS

LABOUR | PACKAGING | ENERGY | FERTILISER | GROWING MEDIA/CASING | TRANSPORT

Agriculture and Food Development Authority

Introduction

Key Objective

The key objective of this report is to surface up to date facts about specific inputs price increases, to apportion the relative importance of inputs to the different sectors of horticulture production arriving at average increases in costs of production in each sector up to March 2022. Finally, the report speaks to the current and potential impacts of very high input prices for primary producers now and for the rest of 2022 season. This is now the second report of this type, the original report published on November 9th, 2021 can be found at:
https://www.teagasc.ie/media/website/publications/2021/Horticulture-Input-Costs-2021---Impact-Assessment.pdf

Background

The operating environment for Irish horticulture producers has changed significantly in Q1, 2022. While Brexit, Covid-19 and now the evolving Ukrainian crisis have negatively influenced input prices and supply chains, producers are wrestling with cost management and production planning. Growers have seen unparalleled increases in key input prices, particularly those inputs linked to energy inflation.

Considerable volatility remains as primary producers try to manage the planting season and associated cash flows but risk associated with costs and returns have increased significantly. Growers have been negotiating with customers for price increases based on the first wave of cost increases reported in Q4 2021. No sooner had these negotiations concluded when a second significant wave of input price inflation, linked to energy inflation, started to manifest itself in significant input price inflation. It is worth remembering that margin over costs for primary producers is very low, depending on sub-sector.

Where the speed of input price inflation during February and March 2022 has been rapid, the market response will inevitably lag behind. It has not been possible to cover all enterprise types or sub-sectors in this horticultural sector analysis.

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. It is therefore necessary to reference unofficial data sources, industry expertise and direct contact to form an up to date assessment of input prices.

Through direct contact with primary producers, product and service suppliers, producer organisations and other state agencies, we have assessed the real input price 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 March 2021 and March 2022. 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. We have limited the exercise to production facilities and primary producer units. It should be noted that compared to the report of November 9th, 2021, regarding glasshouse protected crops, in this report, we have looked specifically at high wire crops as they have a particular exposure to energy costs in the form of natural gas.

Key Inputs

- **In recent months, growers have seen unparalleled increases in costs of key inputs to the horticulture sector in Ireland including energy, fertiliser, packaging, and labour.**
- **Energy, Fertiliser, Labour & Packaging are key inputs across most sectors in horticulture.**
- **Energy is a significant input for many horticulture enterprises where crops are grown indoors in glasshouses and protected greenhouse structures and in the mushroom growing rooms. Gas, Electricity and fuel prices have finally settled somewhat having soared during Q1 putting added cost pressure on all crop production.**
- **High wire glasshouse tomato, cucumber and pepper production depends on gas specifically and this sector has significant exposure to the increase in gas price.**

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	42%	7%	0.0%	2.0%	7%	37%	5%
Nursery stock	35.0%	8.0%	6.0%	6.0%	8.0%	6.0%	31.0%
Soft Fruit	40.0%	7.0%	7.0%	5.0%	12.5%	10.0%	18.5%
Top Fruit	43%	10.0%	6.0%	15.0%	4.0%	0.0%	22%
Vegetables	35.0%	5.0%	12.0%	5.0%	7.0%	0.0%	36.0%
High Wire Crops	28.0%	11.0%	1.4%	3.0%	37.0%	3.2%	16.4%

(*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.

In terms of competing for labour, some of the sectors are reporting to us that rates have increased over 8% for general operatives and over 13% for skilled workers in 2021. There has also been increases in costs associated with advertising, recruitment and training over the period reflected in overall labour input price increases averaging 11%.

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 myriad of packaging products have all increased, some by as much as 100%. However, the average increases are around 40% depending on the mix and type of packaging required in a sector. While the pulp (cardboard) products are up around 35%, supply shortages are apparent due to the increase in online shopping deliveries. Plastic based products in general are up significantly more (48%) as energy prices have a more significant impact here. Our sources of information include growers, producer organisations who buy packaging centrally, and packaging suppliers directly. It is probable that further price rises will play through reflecting the relationship with energy price.

Fertiliser

Fertiliser prices are influenced by supply and demand in the market, but also reflect production costs, which are heavily related to energy prices. International fertiliser prices have reached their highest level ever with average cost tripling since March 2021. Current prices for speciality fertilisers used in the sector are running at €1100/ton while key fertiliser, nitrogen is over €1000/ton compared to €270 a year ago. In the horticultural sector, fertiliser is an important input and controlled release fertiliser and liquid feed fertiliser are particularly important inputs. 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 twelve months putting added cost pressure on all protected crop production. We have seen electricity increase

by 131% on average and diesel by 141% on average. The exposure to energy price inflation is dependent on crop type, existence of contracts for electricity supply, and whether biomass systems are in use. Protected high wire crops are dependent on gas for heat and carbon dioxide supplementation and are particularly impacted. Transport costs have added an additional layer of energy related cost to the all inputs in terms of delivery costs.

Commentary by Sector

Table 2: Input price inflation - March 2021 v March 2022

Horticulture sector	Labour	Packaging	Fertiliser	*CPP	Energy	Compost/ Casing/ Growing Media	Other	% increase costs of production 2021-2022 (weighted)
Mushrooms	8.5%	48.0%	0.0%	50.0%	135.0%	8.5%	14.0%	18.5%
Nursery stock	7.0%	35.0%	120.0%	6.0%	135.0%	27.0%	10.0%	13%
Soft Fruit	9.0%	40.0%	92.0%	15.0%	135.0%	20.8%	10.0%	14%
Top Fruit	11.0%	42.0%	240.0%	18.0%	135.0%	0.0%	10.0%	16%
Vegetables	11.0%	36.0%	240.0%	17.0%	135.0%	20.0%	10.0%	26%
High wire crops	7.0%	26.0%	33.0%	7.3%	270.0%***	23.0%	10.0%	49%

(*CPP = crop protection products, includes disposable aprons and PPE for mushroom industry)
(** Energy includes electricity at +131% and diesel +141%)
(***includes natural gas and electricity)

Mushroom Sector

We estimate that input price inflation in the last twelve months is 18.5%.

From a **labour** perspective, the mushroom sector is a highly intensive. Labour currently accounts for 42% of total cost of production on mushroom farms and has increased by 8.5% in the reference period.

Mushroom **compost** has increased by 8.24% in the reference period. Compost represents 37% of total input costs. Mushroom packaging represents 6.8% of all input costs. It has increased sharply (48%) over the past 12 months, and further increases are expected in 2022. Crop protection products (CPP) have increased significantly, driven by sharp increases in disposable gloves and suits (+120% and +191%) based on wider demand for these items during 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 131% and 141% over the period 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. In addition, there may be some ripple effects in the shape and size of the market due to overall impact of food inflation on the UK grocery basket but it is too early to know what if any these new dynamics may be.

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.

We estimate that input price inflation in the last twelve months is 14%.

Labour is the biggest production cost. This accounts for at least 40% (45% on some farms) of the total production cost on each farm. This is mainly for harvesting but also includes labour for plant management, lifting modules and pack house. Competition in sourcing workers is increasing, and is leading to higher wage price inflation, estimated at around 9% in this sector for the reference period.

Plant material is a significant cost for soft fruit production. All of the plants are imported primarily from the Netherlands and prices have increased by 10% when transport is included.

Energy in the form of heat, is used in modern glasshouse production of strawberry for season extension on the shoulders of the season, which now runs from February to November. Heating costs have increased significantly in the reference period. Gas (natural & LNG) prices have gone up by as much as 200% in recent months. **Electricity** is a significant cost too because of the cold storage requirements and general lighting and pumps. Electricity costs have increased by 131% in the general market place while fuel has increased by 141%. The cost of diesel for operating machinery and delivery transport is especially significant now.

Other sector specific costs like **packaging, growing media** and **fertiliser** are important inputs, which are the backbone of the production system. Referencing packaging supply across the horticulture sector generally, it has gone up by approximately 40% based on the mix of packaging types used in this sector.

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. High wire crops, which include tomatoes, cucumbers and peppers, are grown in heated and air conditioned environments using 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. Averaging across the protected crop sector can unfortunately mask specific spikes in input costs, for specific production systems and producers. For this reason we have in this instance of the report looked at the high wire crop sector in detail but it is fair to apply the general increases recorded for packaging, electricity, fuel, labour, and fertiliser to the protected lettuce sector too. Specific reference to the lettuce sector was made in our November report.

High wire crops

The high wire crop sector has significant exposure to the increase in **gas price**. We estimate that input price inflation in the last twelve months is 49% based in large part on natural gas price inflation. While the sharp increase in gas price occurred mid-year 2021, and again in February-March 2022, **increases of around 270% in unit gas price** have been recorded in the twelve months up to March 2022. If the current price (March 31st, 2022) remains for a full 2022 season, it will represent a fourfold increase of this input cost.

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, and Peppers). These crops require heating and supplementary CO_2 as low night temperatures (below 12°C) and carbon dioxide levels falling below ambient can significantly impact on yield (30% decrease approx.). The heat requirement cannot be reduced significantly, as crop failure will result.

Labour is a key cost for this sector and as with other horticultural sectors, labour costs are up by 8% approximately. Combined increases in **packaging** and **transport** will have a very significant impact on the profitability of glasshouse growing which is dependent on natural gas for heat and carbon dioxide availability.

There is also a concern that an oversupply will occur in the middle of our 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. This remains to be seen.

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 impact on overall costs of production are very significant, in the order of 26% since March 2021. The continuing inflation in input prices, in particular fertiliser, fuel, packaging and machinery coupled with the shortage in labour, negatively affect the outdoor vegetable sector. As predicted late last year, growers have now started to exit entirely from the sector or from producing certain lines and it is estimated that the area of outdoor field vegetables will be down on 2021 area to the tune of 10 -12% with some crop commodities back by as much as 15-20%.

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 35% of the cost of production. Labour costs are up by 11% across general operatives and other skilled labour such as tractor drivers. 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.

International **fertiliser** prices have reached their highest level ever with average cost of fertiliser, which is a key component of field vegetable production, tripling since March 2021. Current prices for speciality fertilisers used in the sector are running at €1100/ton while key fertiliser, nitrogen is over €1000/ton compared to €270 a year ago. Some growers have had trouble in procuring stock, which is likely to affect yield and quality later in the season leading to potential reduced availability on some lines.

The cost of **energy (electricity and fuel)** which is a major necessary input on vegetable farms continues to escalate. Since March 2021, electricity costs have increased by 131%, while fuel has increased by 141%. The cost of diesel for operating machinery is especially significant at the moment while crops go into the ground, as is the ongoing the cost of electricity in operating refrigerated storage which helps guarantee home supply of Irish grown vegetable at this time of the year and for the next 2-3 months.

A wide range of plastic and paper packaging including bags, punnets, netting and boxes have also continued to see cost increases. Plastic raw materials have increased very significantly. Generally, an average of 40% is common amongst suppliers since March 2021.

Risk for the 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, hedging and cut foliage and protected production of bedding and pot plants.

Young plant material

The inputs for producing young plants (labour, pots and growing media) have all increased. Very strong demand for plants has continued to see increased prices of imported and traded material. As there is a short supply of young plant material there is active competition amongst growers to order desired stock.

Young shrubs have seen a rise of c. 15% (following c. 29% rise in 2020) and bare root trees a price rise of between 5% and 20% depending size and species. Bedding and protected ornamental plants have seen a c.3% rise in plug costs; a low value plug tray has risen by 5% from €17 to €17.51.

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 1- 5 years before their trees are ready for sale. These growers have substantial capital investments in new stock material, growers are taking a significant gamble that their investment will still deliver a return in four to five years when harvested.

Labour

Increased costs of labour have been in line with other horticultural sectors. Investment in automation continues but there is limited potential in areas such as field production of young and semi mature trees. Due to a lack of skilled propagators, some tree producers have begun to revert to producing their own young plants to ensure supply of new material for planting in spring 2023. With limited labour available, there will be a knock on impact on production capacity.

Energy

For protected production of bedding and pot plants, heating costs have risen significantly for those using natural gas and to a lesser extent biomass. The key heated ornamental crop is Poinsettias with production running from July to December. Lines, which have a high heat demand, may be substituted for hardier, lower value lines.

Transport

Dedicated transport in the sector has seen increases in transport with a fuel charge of 25% in place (up from 18.5% in 2020-21), while others increased their basic delivery cost by 15%. The cost of transport between Ireland, UK and Netherlands continues to increase. Administration charges for any shipment to or through UK were introduced in 2021 and remain in place. Costs can range from €50 to €120 per consignment. Fertiliser carriage from UK face an administration charge of €250 per shipment. Any increases in delivery charges after prices are agreed affect the supplier's margin.

Fertiliser & Growing media

The sector has a high dependence on controlled release fertiliser (CRF) which supplies nutrients throughout the cropping year with limited leaching potential. Price of this specialist fertiliser has effectively trebled. Growing media supplies have been less reliable with longer lead times and costs have increased significantly – one grower reporting a price increase of €1,600 per tonne since last year. An average cubic meter of growing media is now €79 including delivery up from €60.85 last year.

Plastics

Supply of plastics has seen no improvement in the last year. Growers are being asked to place orders one year in advance. Costs for labels and pots have increased significantly e.g. six pack for bedding has risen from 12 cent to 17 cent in the last year (42% price increase) and 2 litre pots have risen by 7 cent from 16 to 23 cent (44% price increase). Long lead in time for supply of labels is an additional burden to growers.

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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.