

Sunflowers

Factsheet 22/21

The annual sunflower, *Helianthus annuus*, is native to North America and has a long history as a source of medicine, food, oil and dye. We are familiar with it as a popular cut flower where flowering stems can be cut as required and sold in mono cut flower bunches. As well as a summer-grown field crop sunflowers can benefit from growth under protection with tunnel grown flowers offering a longer season due to increased protection from wind and rain damage. Sunflowers can also make a very attractive addition to wide range of businesses. They can be sold alongside a range of other products and due to the long flowering season this can even stretch into the autumn to coincide with pumpkins in the run up to Halloween. Sunflowers can also be grown as a backdrop for photographs in a new phenomenon known as 'Insta' fields.



Sunflower has become very popular as a cut flower in recent years.

SITE & SOIL

A sheltered south facing site is desirable which warms up rapidly in the spring. Sunflowers are deep rooted and will have significant water and nutrient needs although they can be grown in a wide range of soil types. Sunflowers can be drought tolerant, making them suitable for use on more drought-prone soils. For best results a south-facing field away from trees will be best suited to sunflowers.

SCHEDULING

Sunflower can be worked into a variety of schedules to suit different marketing models. Sunflowers planted at the end of April are likely to start flowering from mid-July if conditions are favourable or later into early August for larger headed varieties. Successive harvests of flowers can be achieved by new plantings every 7 – 14 days during the spring. Plants sown at the start of April will be ready for harvest in 14-17 weeks depending on cultivar and conditions and will be ready for harvest between mid-August and early September. On average they flower 60-70 days from sowing.

CULTIVARS

A wide range of cultivars are available offering different head sizes and growth habits. Cultivars will either produce a single head (grandiflora) or multiple heads on a single plant (multiflora). Flower colours range along a spectrum from bright orange to cream or dark amber. The main seed suppliers for the specialist cut flower species are Takki seeds (www.takiiseed.com), Evanthia Seeds (www.evanthia.nl) or Johnny seeds (www.johnnyseeds.com). Proveg seeds (www.provegseeds.com) have been developing the Galilee series which suit the Irish climate.



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Some of the newer varieties being developed for the cut flower market

CULTIVATION

For the outdoor summer crop most cultivars can be grown in the field between late spring and early winter. Seed can be sown directly into the soil when temperature reach at least 6-8°C. Seed should be sown to a depth of 2-5cm with a greater depth if the soil is dry. The optimum density is on average approximately 10/m². A spacing of 20 – 30cm between plants is generally used for standard types but a wider spacing of 50cm and above can be used for larger multi-head cultivars. Higher plant density generally reduce head size. Good seed bed preparation is essential with a fine firm texture. For early or late season cut flowers, sunflowers can be grown to maturity in tunnels. Tunnel-grown flowers will be taller than those in the field meaning that it may be better to choose more compact cultivars. For earlier production, seed can also be sown in modular trays for germination and transplanting from late March onwards. These should be kept warm if possible (24°C) and will be ready for transplanting after 3 – 4 weeks once the second true leaf has been formed.

PINCHING

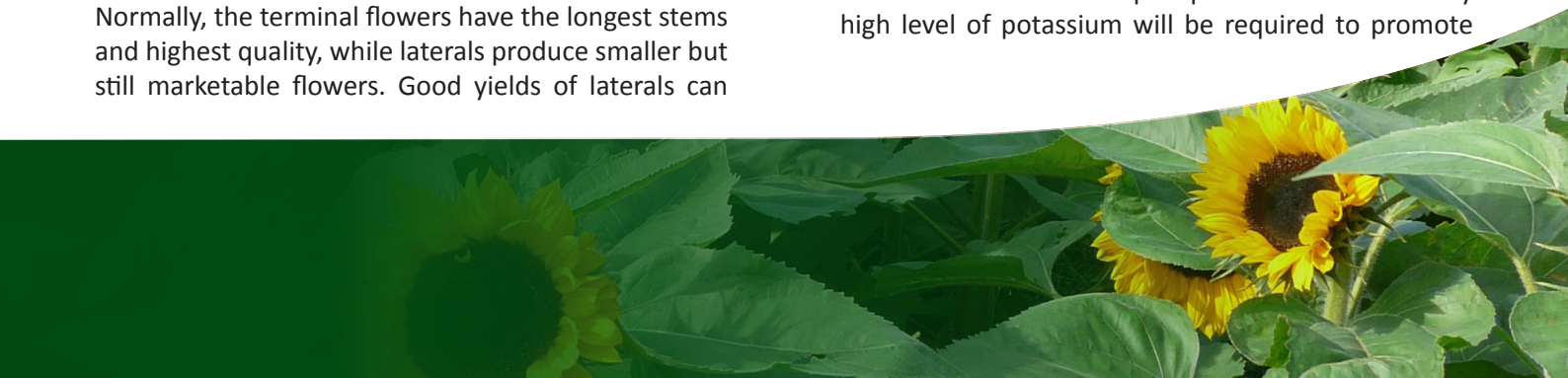
Normally, the terminal flowers have the longest stems and highest quality, while laterals produce smaller but still marketable flowers. Good yields of laterals can

be produced by growing naturally branching cultivars on a wide spacing; alternatively the plants can be pinched, optimally when they have four to six pairs of leaves or are 20–30cm high (pinching older plants may produce laterals that are too short to market). Multiflora cultivars are well suited to pinching giving side shoots that are relatively long and flower heads of intermediate size. Pinching can delay picking by one to two weeks and having pinched and non-pinched areas will spread the harvest. Sunflowers are not normally supported although some growers find a layer of mesh useful when grown under protection.

Sunflowers can also be pot grown and the restricted rooting volume can reduce cropping times but will require careful feed and irrigation.

CROP NUTRITION

The deep rooting nature of sunflowers will provide access to nitrogen from deep in the soil so suitable yields can be achieved from even low nitrogen soils without fertilisation. High soil nitrogen can reduce yield by encouraging vegetative growth so caution is advised. A low level of phosphorus and a relatively high level of potassium will be required to promote



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flowering. A maintenance application of phosphate and potassium of 40 – 60 kg/ha is recommended to maintain levels.

Very acidic soils (below pH 5.0) will also put the crop at risk of micronutrient deficiencies especially molybdenum, copper and manganese. Boron deficiencies can pose a significant risk on calcareous or sandy soils. It's always sensible to get a soil analysis done prior to sowing or planting and Teagasc can then provide tailored recommendations.

WEED CONTROL

Weed control after establishment can be difficult due to few approved herbicides for sunflower so an overwinter fallow period before planting can be useful in controlling grass and broadleaf weeds using non-selective herbicides. Weeds are unlikely to create a problem once the crop is established as the broad canopy and tall height will out compete the majority of weeds. However, the crop is very susceptible to weed competition during early establishment from as early as the fourth week post-emergence. *Pendimethalin* in the form of Stomp Aqua has off label approval and can be used before emergence. *Cycloxydim* as Stratus Ultra has an off label approval for grass weeds in the crop prior to stem elongation.

There are no approved herbicides for sunflowers grown under protection. Mechanical weed control can also be very effective especially given the wide row spacing that is best for sunflower.

PESTS & DISEASES

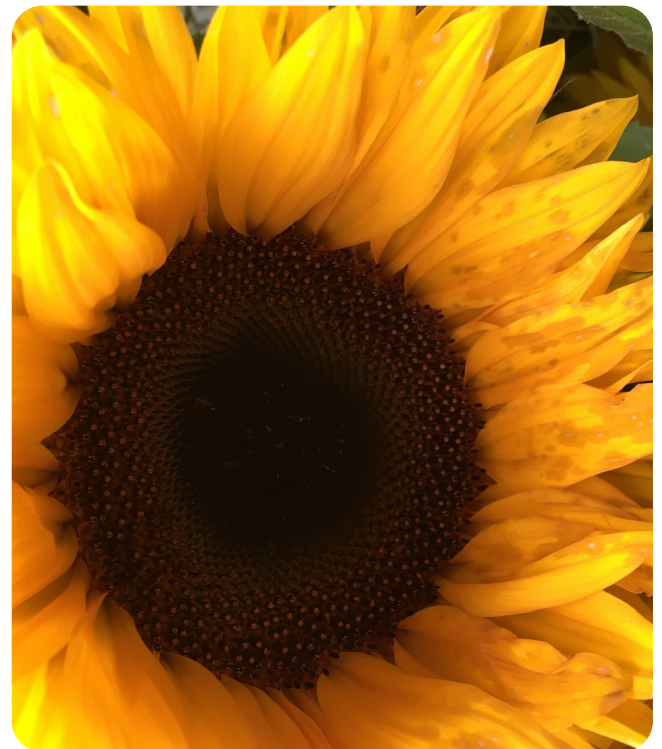
A range of pests and diseases can pose a problem for sunflower. Slugs can be a particular problem in early establishment. In the field crop, larger pests (pigeons & rabbits) can be a problem during establishment and during ripening. While some insect pests may cause minor damage (e.g. tortrix larvae, leaf miners and thrips) these are unlikely to be a significant problem and few control options are available.

Sunflowers are at risk from some disease problems.

Botrytis can cause head rot and is common if the crop is grown in damp, cool (15-25°C) conditions and this can discolour the back of the head and spread to the petals. Petal spotting can be an issue, the cause of which is still unclear. The spots or blemishes produced can become brown and necrotic and is serious enough to render stems unsaleable. For up to date recommendations on plant protection products approved for control of pests and diseases, contact Teagasc.

HARVEST

The sheer bulk of the sunflower crop creates problems not usually encountered in cut flower crops. Additional space and labour are required for transport from the field to the packhouse, for storage and for packing. Although they are robust, sunflowers nevertheless need to be treated appropriately to avoid damage. Any delay in harvesting can have a serious effect on



Petal spotting can sometimes be an issue, the cause of which remains unknown.

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vase life because of the speed with which sunflowers develop. Cut stems will need to be put into water as soon as possible after picking to avoid rapid wilting. On a small scale, irrigation shortly before picking can improve shelf life after harvest.

Recommended picking stages vary from cutting tight, when the ray florets are barely visible, to almost completely open. A useful compromise is to pick when the ray florets are between half and fully expanded, usually when the petals are perpendicular to the flower head. If picked too tight and stored cool, they may not open properly. The leaves should be removed, certainly any that would be below the waterline, and preferably all of them, not only because of the speed at which they deteriorate but also to save weight when transporting. Cut stems can be kept for up to a week in a cold store with typical shelf life up to two weeks with suitable flower foods such as 'Chrysal CVBN'.

YIELD & RETURNS

Depending on your market outlet and based on an average plant density of 10 plants/m², a net return of €1.5 – €2 /m² is achievable with a 70% grade out. Higher margins of up to €4 per m² are achievable from a crop grown under protection.



Harvest stage is critical – too tight as in the top picture and they may not open. Ideal stage is shown in the bottom picture.

Some pictures courtesy of Lyndon Mason, Cut Flower Centre, Lincs, UK.