

Tyfu Cymru: Technical Advice Sheet

Growing Sunflowers

Introduction

Sunflowers can 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. Heads can be cut as required and sold individual at till points for other crops. For sites where footfall is important – pick your own fruit for example – sunflowers can either be sold as a PYO product or grown as a backdrop for photographs. They can also be an easy route into cut flowers as a starter crop to build up a customer base. 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.



Scheduling & Planning

Sunflowers can be worked into a variety of schedules to suit different marketing models. Sunflowers planted at the end of April are likely to show flower formation in 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.

Site Selection

Sunflowers are deep rooted, and will have significant water and nutrient needs although sunflowers can be grown in a wide range of soil types. However, sunflowers are unlikely to need much (if any) nitrogen) although micronutrients may need careful management, especially boron, as discussed below. They will grow best in a well-drained soil that will warm up rapidly in the spring. Sunflower 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 sunflower.

Crop Rotations

Sunflower is very susceptible to *Sclerotinia* which can be a risk to other crops grown in the same rotation, including potato and it is best to avoid short rotations of four years or less to reduce the risk. High soil nitrogen will also reduce yields, so avoid sowing sunflowers after crops that leave a large nitrogen residue such as brassicas. 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.

Cultivar Choice

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 along a spectrum from bright orange to cream or dark amber. If you have limited growing

space you might want to consider planting a single brilliant yellow cultivar – alternatively, a mixed stand can form an attractive display, especially for PYO sites. Be careful to choose cultivars suit to the UK climate, particularly if growing from seed.

Cultivation

The majority of cultivars can be grown in the field between late spring and early winter. Spacing of 20 – 30cm between plants can be targeted, although wider spacing of 50cm and above can be used for larger multihead cultivars although spacing below 10cm be used for smaller varieties or plants grown for a single harvest. Great plant density, with smaller spaces between plants, will reduce head size. Sunflowers can also be pot grown, and the restricted rooting volume can reduce cropping times but will require careful feed and irrigation.

Seeds can also be sown in modular trays for germination for transplanting, or young plants purchased in from a propagator. These should be kept warm if possible (24°C) but can be raised under plastic if it's available. These will be ready for transplantation after 3 – 4 weeks once the second true leaf have been formed (although they should not be left longer to avoid weak stem formation). Propagation under protection to germinate early crops before the risk of frost has lifted in the early spring. Alternatively, seeds can be direct drilled to a depth of 5cm. Once established young plants should be grown under fleece if there is a risk of frost, or under netting to reduce the risk of bird damage.

Seed can also be sown directly into the soil, although it is best to wait until the soil temperature reaches at least 6-8°C. Seed should be sown to a depth of 2-5cm, with a greater depth if the soil is dry. For larger areas cereal or precision drills can be used (e.g. disk, belt or pneumatic) but accuracy of drilling is essential as the crop will not expand to fill gaps. Good seed bed preparation is essential, with a fine firm texture similar to that used for peas or sugar beet. Sunflowers can also be very sensitive to compaction, so suitable soil cultivation may be required before planting. Sunflower can be grown to maturity in tunnels, particularly if you are seeking early or late season production, and this can guard against pest, disease or weather damage. Tunnel-grown flowers will be taller than those in the field, meaning that it may be better to choose more compact cultivars for tunnel production.

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. RB209 suggests that applications above 25 – 50 kg/ha are unlikely to be required. A low level of phosphorus and a relatively high level of potassium will be required to promote flowering, RB209 recommends a maintenance application of phosphate and potassium of 40 – 60 kg/ha to maintain levels. Very acidic soils (below pH 5) will also put the crop at risk of micronutrient deficiencies, especially of molybdenum, copper and manganese. Boron deficiencies can pose a significant risk on calcareous or sandy soils, this can be supplemented with an application of 1.2 kg/ha before drilling at pH 7.5 or below, while foliar sprays can be applied to crops in sandy or calcareous soils. Fertiliser applications should be planned at three times over the cropping season – a base dressing of phosphate and potassium before planting, a top dressing of nitrogen at establishment and a foliar spray at GE 2.5-3.2. Fertilisation approach will vary between season and between sites – for example pre-planting feeding may see a greater impact in cooler springs.

Harvest

While sunflowers are more robust than other cut flowers care must be taken during picking and sale. Additional storage and transport space will be needed, and greater labour to handle the crop compared with other crops. Cut stems will need to be put into water as soon as possible after picking to avoid rapid wilting. On the small scale, irrigation shortly before picking can improve shelf life after harvest. Flowers can be cut at a variety of stages, but as a general rule best performance can be achieved when flowers are picked when outer petals are 50-100% expanded and are at 90° to the head – picking earlier risks the flower not opening completely. 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. For small-scale sales you may wish to limit harvests to match periods of peak demand (e.g. over the weekend) to limit the amount of time stems are stored after cutting.

Pests & Diseases

A range of pest and disease species can pose a problem for sunflower. Slugs can be a particular problem in early establishment. Larger pests (pigeons, rabbits, wild birds) can be a problem during establishment and during ripening. While some insect pests may cause minor damage (e.g. tortrix larvae, leaf miners, thrips and silver Y moths) this is unlikely to be a significant problem and few control options are available. Sunflowers are at risk from a variety of 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. Stem and head rot can also be caused by *Sclerotinia* acquired from sclerotia in the soil, which will also cause wilting and collapse.



Botrytis rot in Sunflower

Weeds

Weeds are unlikely to create a problem once the crop is established as the broad canopy and tall height will outcompete 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. This is particularly pronounced in crops with poor soil aeration or low temperatures where establishment is slow. A later planting date will allow rapid establishment whilst providing a window for weed control through cultivation and/or non-selective herbicides. Pendimethalin (Stomp Aqua) and Emerger (EAMU 1615/2009) can be used before emergence while Centurion Max (EAMU 1101/2009) and Balistik (EAMU 2135/2019) can be used prior to stem elongation. Mechanical weed control can also be very effective, especially given the wide row spacing that is best for sunflower although careful pre-emergence control can limit the need for post-emergence applications.

Disclaimer

Every effort is made to ensure the accuracy of information and recommendations given in these notes. All applications of crop protection chemicals should be made in accordance with label recommendations, which should be consulted before spraying. Some of the pesticides mentioned in these notes may not be supported by label recommendations for their use on crops but are permissible via Extension of Authorisation for Minor Use (EAMU) in the UK under 'The Revised Long Term Arrangements For Extension Of Use (2002)'. In these cases, the use of the pesticide is at the risk of the user and Tyfu Cymru does not accept liability for any loss or damage caused by such use. The references to on-label approvals and EAMUs for use of pesticides in pumpkin crops and are correct at the time of writing. These are subject to change and approval may be withdrawn at any point. It is the grower's responsibility to check approvals before use of pesticides. If in doubt a grower should seek advice from a BASIS qualified advisor - this is available free of charge for eligible growers through the Tyfu Cymru program, please contact us to arrange an appointment – email/telephone advice is also available.