Swedes

Technical Note
March 2020
Horticultural Dept

Swedes are a popular crop in Ireland with approximately 445 hectares grown in 2016. With the development of cold storage, the crop is now available all year round and home supply satisfies the bulk of the demand. Field production supplies the market from July to April and from cold store for the April to June period. Although some early crops are transplanted the majority of the crop is all direct drilled. Swedes are normally sown on drills but drilling on the flat or on beds is sometimes used.

SOIL TYPE — Well drained medium to heavy loam or clay loam.

SOIL PH — The pH of the soil should preferably be around 6.5. Swedes are quite tolerant of acid soils but below a pH of 5.4 growth is increasingly restricted. Above pH 7.0 boron becomes progressively less available.

ROTATION — Allow a minimum break of 4-5 years between all brassicas. To minimize the build up of pests and particularly diseases a rotation of 7-8 years between swede crops is desirable.

CULTIVARS

Magres: Danish variety, introduced 1980

Magres: standard cultivar is which is suitable for early, mid-season and late production. It's a light purple cultivar with high dry matter, frost hardy, with good resistance to bolting, powdery mildew and splitting but rather prone to Phoma and downy mildew. A tried and tested variety.
Helenor: has a very good colour and globe shape but can suffer from an internal brown discoloration; to minimize this problem grow it at tight spacings and complete harvesting by the end of November.
Tweed F1: hybrid variety that is becoming increasingly popular. Produces uniform, globe shaped roots. Not suitable for early work as it can bolt. Winter hardiness yet to be confirmed.
Pict F1: new main season swede bred by Clause.

FERTILIZER — Apply the following amounts* (kg/ha) according to soil analysis:

Excessive N causes cracks and splits

Index	1	2	3	4
N	70	45	25	0
P	70	60	45	35
K	250	180	170	125

* For transplanted crops: N index 1-4 is 80, 52, 29, 0 kg/ha respectively

Compounds — Normally a boronated compound is used such 8-5-18, 8-3-18 or 6-10-18.

Nitrogen — Swedes are a low nitrogen demanding crop. Excessive applications of nitrogen make a crop more susceptible to cracking and subsequent wet rot particularly in a wet summer. Preferably don't follow good permanent grass but if you are in that situation apply no nitrogen at

Nitrogen

sowing. If you are following poor grass use a maximum of 25 kg/ha at sowing. The crop is not normally topdressed but if a crop is backward it may be beneficial to apply 20 kg/ha up to mid-September to increase bulb size, but do not exceed the Nitrates limit of 100 kg/ha in total.

Boron

Brown Heart due to boron deficiency can be a serious problem and usually worse on high pH soils. It needs to be prevented rather than cured so use a boronated compound as standard pre-sowing and apply 2-3 foliar sprays depending on soil analysis. Begin spraying at an early plant growth stage – 2 to 3 leaves. It will affect the larger swedes first so cut open the larger roots to check for it. The desirable level of boron in the soil is in the range of 0.8-1.3 mg/kg and less than 0.5 mg/kg is very low to deficient. Boron applications are usually in the range of 1-3 kg/ha.

Index	1	2	3	4
B - mg/L	<0.5	0.5-1.0	1.1-1.5	1.6-2.0

EARLY CROP

Either use transplants or direct drill the crop. Transplanting has become less popular in recent years as the direct drilled crop requires less labour and gives a better shaped swede. Both ways are equally early.

TRANSPLANTS: sow under protection in modules in the latter half of February and plant out after hardening off at the end of March at 25-30 cm spacing on 70 cm drills.

DRILLED: sow first half of March (swedes will bolt if sown too early)

PLASTIC COVERS

The early crop is normally covered with plastic or fleece. Plastic will normally be removed in early May. Fleece may be removed at any stage.

MAIN CROP

Normal drilling time is from April to June.
It takes approximately 400g of seed to sow a hectare.

SPACING

Recommended density: 9-14 plants per m^2
Direct drill seeds 11-13 cm apart on 70 cm drills
Direct drill seeds 42 x 18 on 180 cm beds

WEEDS

The standard herbicide treatment is Bonalan at 8 l/ha or Devrinol at 1.25 l/ha incorporated into the soil prior to drilling, followed by Butisan applied at 1.5 l/ha within 48 hours of drilling but before the crop chits. On light ground decrease the rate of Butisan by 0.25 l/ha. Damage from Butisan to the emerging crop may arise under conditions of heavy rainfall post application. Dual Gold is also registered for swedes but is very similar to Butisan in spectrum of weeds controlled but could try tank mix of Butisan 1.25 + Dual Gold 0.7 l/ha. Gamit at 180 ml/ha can be tank mixed with Butisan and improves control of mayweed, cleavers and fumitory. The only post emergence herbicide for broadleaved weeds is Dow Shield (or similar) at 1 l/ha, and is very limited in the range of weeds it controls: creeping thistle, groundsel, corn marigold and mayweed. If you have a problem with volunteer potatoes use 1-2 applications of Dow Shield at about 2 weeks apart – it won't kill them

WEEDS

but will stunt their growth. Redshank can be a problem weed as it gets through the current herbicides. The best way to control it is to use a stale seed bed technique.

Grass can be controlled by Stratos, Fusilade, Falcon or Pilot Ultra. Annual meadow grass is normally well controlled by Butisan but if it's a problem use Falcon or Centurion Max.
Un-netted swedes can be grubbed at an early plant growth stage to augment chemical control.

PESTS

Cabbage root fly, flea beetle and aphids are the three commonest pests.

Cabbage root fly

This is a major pest of swedes with both first and second generations causing problems. The first generation appears in April-May and the second appears from early July to September. Eggs are laid at the base of the plant and hatch into larvae that eat the roots and graze on the surface of the developing swede. Swedes are susceptible to egg laying from the 2 true leaf stage. A bad attack can render a crop unfit for sale.

The only effective method of control is to use insect-proof netting and most swedes in Ireland are now netted. They are expensive to purchase initially but should last for a minimum of 10 years. These are applied from the time of sowing up to mid September – machines can be used to both lay and roll up the net. Nets come in 13 and 25 m widths; to allow for crop growth deduct 2/3 m respectively from the 13/25 m nets to give 11/22 m of crop covered. The standard mesh size is 1.3 mm. If you want to keep flea beetle out then you'll require a 0.8 mm net which will also help reduce aphid attack. There is a 12% light reduction in using a net and a 3-drill space is lost between nets but these losses are more than made up by a reduction in wind chill and promotion of crop growth. Nets also give a better quality swede with fewer side roots than open-grown swedes. It is vital to ensure good weed control in the crop as once the net goes onto the crop, it isn't removed until mid-September.

An alternative method is to sow late (after mid-May) to miss the first generation and some control of second generation can be had by applying ECOguard Liquid (garlic) using a 4% solution in the mid-July to mid August period. Garlic will kill larvae when they hatch but is short lasting. Benevia is unfortunately not that effective.

Flea beetle

If you notice small pin-prick holes in your young swede crop, this may well be flea beetle, a common pest of swedes particularly during periods of warm, dry weather. You may also notice small beetles that hop when approached. This pest can cause serious damage if it's a heavy attack at the cotyledon stage of the crop. Spray with Decis at 300 ml/ha.

Aphids

May become a problem during dry warm spells.

Product	Rate	Max. No.	HI
Movento	0.5 l/ha	2	3 weeks
Biscaya	0.4 l/ha	2	1 week

Caterpillars May be troublesome in certain years – spray when seen.

Product	Rate	Max. No.	HI
Karate Zeon	150 ml/ha	4	2 weeks
Benevia	0.5 l/ha	2	2 weeks
Coragen	175 ml/ha	2	3 weeks

Slugs Slugs can inflict damage at two periods – they can graze young seedlings but more importantly feed on the mature bulb during the autumn and winter. The use of nets can make matters worse in a slug prone field as humidity at ground level is increased and pellets cannot be easily spread. Where crops are covered with plastic/fleece/nets the crop should be protected at sowing or planting prior to covering and again when the covers are removed. For uncovered crops apply pellets in the August to October period. Use pellets based on either metaldehyde or ferric phosphate.

Pigeons/rabbits It is essential to take precautions before damage occurs from either of these two pests. The best approach to rabbit control is to fence in front of their runs. In general swedes recover well from pigeon damage.

DISEASES The major diseases of swedes are downy mildew and dry rot. Crater spot can occasionally attack whilst powdery mildew may be a problem in dry years. Avoid sowing swedes in fields with clubroot, as in bad attacks this disease can wipe out the crop.

Downy mildew Cool moist conditions favour this disease and is most damaging at the young plant stage (4-6 leaves). Downy mildew on older plants is not a problem. Try preventative spraying with either Signum at 1kg/ha or Curenox at 1 kg/ha.

Dry rot Dry rot is caused by a fungus called Phoma. It commonly occurs during the autumn and winter and is typically seen in the field as patches of affected plants but in severe cases it can be much more widespread, occasionally leading to complete crop loss.

Cultural control: use wide rotations and keep swede crops away from oilseed rape crops. Worst outbreaks have occurred where swedes have followed swedes. Select fields with an open aspect.

Chemical control: ensure the seed is treated with something like Maxim 480 which contains fludioxonil. Use Rudis at 0.4 l/ha (3 week harvest interval), applying 2-3 sprays in the August to September period.

Powdery mildew This is a disease of warm, dry summers. The leaves develop a silvery white appearance particularly on the upper surface of the leaf. The main variety grown, Magres has good resistance to this disease. There are a number of fungicides available but suggest using Score at 0.5 l/ha or Rudis at 0.4 l/ha.

Ring spot This common brassica leaf spotting disease can attack swedes but it doesn't usually cause any major problems and is not normally treated. In the south of the country where conditions are wetter and if there are other brassica crops in the vicinity it might be worthwhile to consider using something like Score (0.5 l/ha) or Rudis (0.4 l/ha) as a preventative.

Crater spot This is caused by a common soil fungus called *Rhizoctonia solani*. It creates small crater like depressions on the side of the bulb usually just below soil level. Attacks are sporadic in nature but a bad attack can render a crop unsalable. There are no recognized control measures but perhaps experiment with a two spray program of Amistar (1 l/ha) at 2-3 LS and repeat 3 weeks later.

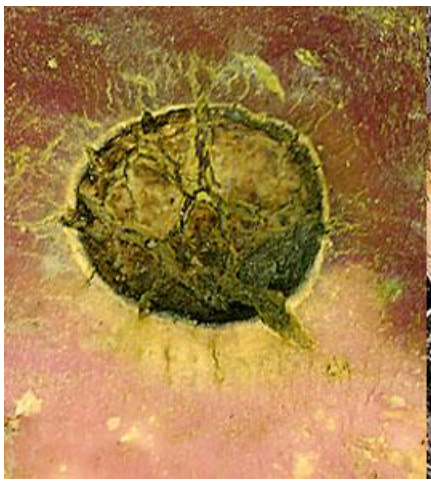
DISORDERS

Bolting Bolting can occur with the early crop if it gets a cold check.
Splitting Caused by too much nitrogen and worst in wet years.

HARVESTING The earliest covered crops usually come in around mid June with the main crop being harvested from July to April. They can be machine or hand harvested into wooden crates and brought to the packhouse for washing, grading and packing into returnable crates or disposable nets.

COLD STORE Cold storage of swedes is a relatively new development in swede production, which allows for sales in May and June. They are put in store in the February to March period, being stored in tonne bins at a temperature of 0-2°C and 97% relative humidity.

YIELD Average yields of packed out swedes would be about 35 tonnes per ha. The weight of an individual swede is around 800g to a kilo. Smaller swedes can be sold in multi-pack nets.



Crater spot

Dry rot or Phoma