Maximising the Potential of Fodder Beet for Livestock

Growing – where to start?

Step 1

Site selection

The soil should be a light to medium, free draining soil. The site should be able to stand up to extreme climatic conditions, provide shelter and water for grazing animals and not offer any environmental limitations such as poaching of water courses, run off, etc.

Beet is not a brassica, meaning it can be grown in rotation with brassicas, e.g. swedes.

Soil sample

Test potential fields for – pH, Phosphorus (P), Potassium (K) and Magnesium (Mg). Use the results to choose an appropriate site and to calculate fertiliser requirements.

Step 2

Variety

Choose the variety depending on what the end use of the crop is. White varieties are higher dry matter and the bulb sits further into the ground, making them a useful type for lifting or for cattle. Coloured roots (red and orange) are lower dry matter, with more bulb sitting out of the ground, making them suit grazing situations, especially for sheep.

Key items to look for in a good variety

- Disease resistance
- Leaf % of total plant and leaf retention
- Grazing utilisation %
- Palatability

Look for a monogerm variety, which are hybrids and have higher establishment rates than multigerm varieties.

Step 3

Seedbed

A fine, even, firm seedbed is required. Any compaction problems in the field should be remedied before sowing. Good ground preparation is essential to seed emergence, which in turn maximises yield potential.

Weeds should be eliminated from the previous crop.

Secondary side roots, which would signal compaction

Step 4

Pre Sowing

Soils must be over **5°C**.

Allow for a headland of **6-10** metres of grass or green stubble around the crop, this will be required when utilising.

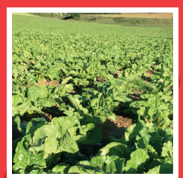
Beet is derived from Mediterranean cultivars, where the soils have high sodium. For this reason, 200-400kg/ha of agricultural salt is recommended to ensure the desired growth and leaf expansion is achieved. Deeply cultivate the application into the soil prior to drilling.

Step 5

Fertiliser

Apply rates of organic and inorganic fertilisers to maximise yield whilst protecting the environment and complying with Nitrate Vulnerable Zone rules.

- **Nitrogen**: initially this should be applied to the seed bed to aid establishment, at a rate of 20–40 kg/ha at this stage. The remaining balance of nitrogen should be applied after the seedlings have established. Applying late season Nitrogen can assist the retention of green leaf into the winter. This allows for the protein rich leaves to survive further through the winter months, balancing nutrition throughout the grazing period.
- **Phosphorus**: on a moderate status soil would be 60kg P_2O_5/ha.
- **Potassium**: on a moderate status soil would be 150kg K_2O/ha for grazed beet and 340kg K_2O/ha on lifted beet.
- **Magnesium**: aids plant growth, with this being a rapid growing plant, it is essential. If soil analysis shows very low Mg levels, apply 150kg/ha or low Mg levels, apply 100kg/ha.
- Other essentials include Sulphur and Boron.



Step 6

Weeds, Pests and Disease

Seek the services of a BASIS registered agronomist to recommend all further inputs into the crop. Weeds are a competitor to the crop seedlings during emergence and pre and post emergence herbicides are commonly used.

If the leaf health deteriorates or there are signs of deficiency then foliar trace elements can be applied.

Scotland has had low disease pressure and fungicides haven't been common practice to date.

Step 7

Calculate Establishment Rate

Establishment below 55,000 plants/ha will limit and effect yield.

How this is calculated will depend on your drill width. For example, if it is 45cm, measure 5.5 metres along a drill, if it is 50cm, measure 5 metres along the drill.

Count the plants along the drill (as above), and repeat over 5 different areas across the crop. Multiply by the number of drills in 1 metre and divide by 5 to reach the total plants/m^2. Then divide this by the seed rate.

Example: Average of **19** plants along the drill x **2** drills in 1 metre **= 38 /5 = 7.76 total plants/m^2**

Seed rate = **100,000 seeds/ha**

Establishment Rate = **(7.76 x 10,000) / (100,000/100) = 77.6%**

Top 10 Tips

1. Soil test and correct pH, phosphate, potassium and magnesium levels
2. Select sheltered, relatively flat fields with light to medium, free draining soil
3. Remedy compaction issues prior to sowing and establish fine firm seed bed
4. Remove weeds and do not allow weeds to manifest in growing crop
5. Assess nitrogen requirements, apply 20-40kg N/ha to seed bed and the remaining requirement after seedling establishment
6. Apply 200-400kg/ha of agricultural salt (exception fen, peats and silty soils), magnesium and boron and sulphur in light land
7. Use white rooted varieties for harvesting and coloured varieties for grazing
8. Sow in March-April, when soil temperature exceeds 5°C
9. Check for signs of manganese deficiency – yellow spots appearing on leaves – apply foliar manganese sulphate if required
10. Seek out a good agronomist to monitor pests, target weed control and monitor for disease