UNBEETABLE
Your complete Seed Force fodder and sugar beet guide
unbeetable

Seed Force is the company that rewrote the rule book and reintroduced beet into the New Zealand farming system.

Supported by our retail partners, our specialised beet systems are paying dividends for farmers all over New Zealand. We’re pushing the boundaries of traditional use and the full potential of this exciting crop is finally being realised.

Compared to any other typical feed source, beet’s cost, quality, utilisation and flexibility are hard to ignore, ensuring it can be included in most farming operations.

But that’s just part of the story. At Seed Force, we know it’s what goes before and after sowing that makes a sustainable difference to a farming operation’s productivity and profitability. So look beyond seed and discover the Seed Force beet difference.
The specific end use of beet will help determine plant type and therefore variety selection. There are four key categories within the species ‘Beta vulgaris’ and each type is typically suited to a key end use:

Mangel beet
- Dry matter less than 13%
- Highest utilisation/highest proportion of bulb above ground
- Variable plant size
- Suited to in-situ grazing, especially for young stock and self-harvest.

Medium-High DM% fodder beet
- Dry matter typically between 17-20%
- Variation between types of proportion of bulb above ground
- Variable plant size
- Suited to in-situ grazing by older animals with some suitable for self/mechanical harvest.

Sugar beet
- Dry matter 20%+
- Uniform plant size
- Suited to mechanical harvesting with longest storage potential.

Medium-High DM% fodder beet
- Dry matter typically between 17-20%
- Variation between types of proportion of bulb above ground
- Variable plant size
- Suited to in-situ grazing by older animals with some suitable for self/mechanical harvest.

Understanding the plant

The aim of correct beet feeding is to maximise animal production while remaining cost effective. Two of the key benefits of beet’s inclusion into feeding systems are its high quality together with its high utilisation. These features, combined with its low feed cost, help ensure feeding beet is of benefit to most feeding systems. It’s important to understand the plant make-up of beet:

- Beet crop is usually 20-25% of yield in leaf, 75-80% bulb yield
- ME of 12MJ/kgDM
- >40:60% sugar
- <10% crude protein (CP) bulb and >15% CP leaf = very palatable and rapidly fermenting in rumen
- >25-30% neutral detergent fibre (NDF)

Seed Force long term beet trial data

<table>
<thead>
<tr>
<th>Variety</th>
<th>Number of trials &amp; years of harvest</th>
<th>Ave Bulb DM%</th>
<th>Ave Leaf DM%</th>
<th>Bulb Yield (tDM/ha)</th>
<th>Total yield (tDM/ha)</th>
<th>Bulb as a proportion of total yield (%)</th>
<th>Proportion of bulb yield that is above ground (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF Brigadier*</td>
<td>Average of 17 trials, 2011-2016</td>
<td>12.7</td>
<td>11.1</td>
<td>15.8</td>
<td>20.4</td>
<td>77</td>
<td>62</td>
</tr>
<tr>
<td>SF Solidar</td>
<td>Average of 4 trials, 2016</td>
<td>14.9</td>
<td>10.2</td>
<td>16.5</td>
<td>21.0</td>
<td>79</td>
<td>55</td>
</tr>
<tr>
<td>SF Blaze</td>
<td>Average of 17 trials, 2011-2016</td>
<td>17.3</td>
<td>11.3</td>
<td>18.6</td>
<td>23.9</td>
<td>80</td>
<td>49</td>
</tr>
<tr>
<td>SF 1505Bv</td>
<td>Average of 7 trials, 2011-2016</td>
<td>18.0</td>
<td>11.6</td>
<td>19.2</td>
<td>25.5</td>
<td>75</td>
<td>50</td>
</tr>
<tr>
<td>SF LIFTA™</td>
<td>Average of 26 trials, 2011-2016</td>
<td>17.0</td>
<td>11.8</td>
<td>20.0</td>
<td>23.4</td>
<td>81</td>
<td>46</td>
</tr>
<tr>
<td>SF Gitty</td>
<td>Average of 7 trials, 2016</td>
<td>18.1</td>
<td>11.9</td>
<td>19.6</td>
<td>24.8</td>
<td>79</td>
<td>47</td>
</tr>
<tr>
<td>SF SUGA™</td>
<td>Average of 10 trials, 2013-2016</td>
<td>23.3</td>
<td>21.7</td>
<td>27.0</td>
<td>30.0</td>
<td>81</td>
<td>53</td>
</tr>
</tbody>
</table>

Note: dry matters stated are averages across multiple sites and years. Ensure individual crops are independently assessed for dry matter.

"The basic distinction between mangels and fodder beet is one of dry matter content, in general varieties with less than 13 percent dry matter are called mangels and those over this value fodder beet. Ir J A "
picking the right beet

Seed Force has a wide range of quality hybrid beet cultivars to suit a range of requirements and farming systems.
**SF BRIGADIER™**
The highest proportion of low DM bulb above ground makes it suitable for grazing stock systems and can be fed to any stock class.

**SF SOLIDAR SF BLAZE SF 1505Bv**
Medium to high DM with excellent in-field performance and high yields.

**SF LIFTA™**
Medium to high DM. Its leaf quality makes it suitable for grazing and bulb uniformity enables mechanical harvesting.

**SF GITY**
High DM option suitable for feeding older animals. High yields whether grazed or lifted.

**SF SUGA™**
Very high DM. Specifically suited to mechanical harvesting and has exceptional storability.

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**Beet type**

**Feed available**

**Stock suitability**

**Sowing rate for grazing/mechanical harvesting**

**Harvest suitability**

**DM %**

**Mangel Beet**

90,000-100,000 seeds/ha

Medium to high DM which makes it suitable for fodder grazing systems.

**Fodder Beet**

Low-Medium DM

80,000-100,000 seeds/ha (grazing)
100,000-120,000 (mechanical harvesting)

Low to medium DM which makes it suitable for most grazing systems.

**Sugar Beet**

Very high DM

100,000-120,000 seeds/ha

Very low DM

194,000-210,000 seeds/ha

Specifically suited to mechanical harvesting and has exceptional storability.
# Seed Force

## beet varieties

### Commercial beet variety characteristics

<table>
<thead>
<tr>
<th>Variety name</th>
<th>Classification</th>
<th>Type (grazing/ lifting/bucket)</th>
<th>Average bulb DM %</th>
<th>% bulb above ground</th>
<th>Animal class suitability</th>
<th>Bulb colour</th>
<th>Pack size (dependant on soil conditions and beet line)</th>
<th>Sowing rate per ha</th>
<th>Variety comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF Brigadier™</td>
<td>mangel beet low DM</td>
<td>grazing or self harvest (bucket)</td>
<td>12.7 (average of 17 trials, 2011-2016)</td>
<td>62.0% (average of 17 trials, 2011-2016)</td>
<td>all classes (esp. young stock and sheep systems)</td>
<td>orange</td>
<td>100,000</td>
<td>90,000-100,000</td>
<td>SF Brigadier™ is a true mangel type beet, with the highest proportion of low dry matter bulbs above ground, it is particularly suited to summer grazing and young stock systems and can be fed to any stock class. SF Brigadier™ offers a high proportion of leaf with exceptional utilisation levels due to its unique characteristics.</td>
</tr>
<tr>
<td>SF Solidar</td>
<td>fodder beet low-medium DM</td>
<td>grazing or self harvest (bucket)</td>
<td>14.9 (average of 4 trials, 2016)</td>
<td>55.1% (average of 4 trials, 2016)</td>
<td>cattle/deer</td>
<td>yellow/orange</td>
<td>100,000</td>
<td>80,000-100,000</td>
<td>SF Solidar is a genetic monogerm hybrid type fodder beet with a high proportion of bulbs above ground, helping ensure good utilisation. SF Solidar will suit all stock types for grazing in situ and/or self harvesting and should be used when a genetic monogerm variety is preferred. It offers low – medium dry matter bulbs making it suitable for most grazing systems.</td>
</tr>
<tr>
<td>SF Blaze</td>
<td>low-medium DM fodder</td>
<td>grazing or self harvest (bucket)</td>
<td>17.3 (average of 17 trials, 2011-2016)</td>
<td>49.0% (average of 17 trials, 2011-2016)</td>
<td>cattle/deer</td>
<td>red</td>
<td>80,000</td>
<td>80,000-100,000</td>
<td>SF Blaze is a medium dry matter genetic monogerm fodder beet. It offers grazing versatility with a high proportion of bulbs above ground.</td>
</tr>
<tr>
<td>SF 1505Bv</td>
<td>fodder beet medium-high DM</td>
<td>grazing or self harvest (bucket)</td>
<td>18 (average of 7 trials, 2011-2016)</td>
<td>49.7% (average of 7 trials, 2011-2016)</td>
<td>older cattle/deer</td>
<td>yellow/orange</td>
<td>50,000</td>
<td>100,000-120,000</td>
<td>SF 1505Bv is a medium – high dry matter genetic monogerm fodder beet with excellent in field performance and high yields. SF 1505Bv features a high proportion of leaf and uniform large bulbs making it particularly suited to most grazing systems.</td>
</tr>
<tr>
<td>SF LIFTA™</td>
<td>fodder beet medium-high DM</td>
<td>grazing or harvest (bucket) or mechanical harvesting</td>
<td>17.9 (average of 26 trials, 2011-2016)</td>
<td>49.2% (average of 26 trials, 2011-2016)</td>
<td>older cattle/deer when grazed in situ, all classes when lifted and fed</td>
<td>orange</td>
<td>100,000</td>
<td>80,000-120,000 (grazing) 100,000-130,000 (mechanical harvesting)</td>
<td>SF LIFTA™ is a medium – high dry matter genetic monogerm fodder beet. It offers high leaf quality making it suitable for grazing and bulb uniformity enabling mechanical harvesting. This versatility helps ensure its suitability to a range of systems where a high yielding variety is required.</td>
</tr>
<tr>
<td>SF Gitty</td>
<td>fodder beet high DM</td>
<td>grazing or harvest (bucket) or mechanical harvesting</td>
<td>18.1 (average of 7 trials, 2011-2016)</td>
<td>46.8% (average of 7 trials, 2011-2016)</td>
<td>older cattle/deer when grazed in situ, all classes when lifted and fed</td>
<td>pink</td>
<td>50,000</td>
<td>100,000-120,000 (grazing) 100,000-130,000 (mechanical harvesting)</td>
<td>SF Gitty is a high dry matter fodder beet option suitable for grazing by older animals and its bulb uniformity makes it particularly suited to mechanical harvesting. SF Gitty offers high yields whether grazed or lifted.</td>
</tr>
<tr>
<td>SF SUGA™</td>
<td>sugar beet very high DM</td>
<td>mechanical harvesting</td>
<td>23.3 (average of 10 trials, 2013-2016)</td>
<td>27.0% (average of 10, 2013-2016)</td>
<td>all classes when lifted and fed</td>
<td>white (green crown)</td>
<td>50,000</td>
<td>100,000-120,000 (mechanical harvesting)</td>
<td>SF SUGA™ is a true sugar beet type specifically suited to mechanical harvesting. Its very high dry matter makes it ensure high harvestable yields and its bulb uniformity and shape minimise harvest losses. SF SUGA™ has exceptional storability when compared with mechanically harvested fodder beet.</td>
</tr>
</tbody>
</table>

Note: dry matters stated are averages across multiple sites and years. Ensure individual crops are independently assessed for dry matter.
Beet seed types and Seed Force hybrids

Seed Force proprietary beets are hybrid types that are developed following a complex breeding programme. Hybrid beet seed is quite different to many of the seeds that are typically sown in New Zealand. Hybrid varieties are available as two main types: technical monogerm and genetic monogerm.

Hybrid technical monogerm seed is produced and harvested as a clustered seed. This is then singulated mechanically to produce single germinating seeds. This results in a seed which often varies in shape and size and is therefore pelleted to help ensure evenness of seed size and uniformity to aid with sowing. As it is a mechanical process it cannot be guaranteed that all seeds will be single and post emergence there can sometimes be double seedlings in the paddock.

Genetic monogerm seed has the benefit of not going through this mechanical process and therefore the seed size can often be more uniform. Regardless of seed type, fodder beet seed typically carries a slightly lower germination percentage than that of more common species, e.g. forage brassicas. This is addressed with sowing rates determined by this known factor, as your optimum plants established should be considered and a specific sowing rate calculated to achieve this. As New Zealand’s conditions are varied and unique, ensure you use agronomy techniques and get advice for your location and environment.

All proprietary hybrid beet seed is produced offshore, is always germination tested to international standards and must reach pre-determined requirements.

Seed Force has one of the most comprehensive ranges of beets suitable for Australasian conditions and systems. We have links to some of the world’s best beet breeding programmes to screen material and make variety selections based on a number of factors.

Seed Force runs some of the largest field trials of fodder beet in New Zealand, comparing commercially available and new material. Rather than just focusing on total yield we gather a range of information from these trials which are crucial for fodder beet growers here in New Zealand. Things like establishment, disease tolerance, bulb above ground and dry matter are all recorded and analysed to help ensure we can advise on the varieties best suited to the grower’s system and requirements.

These premium proprietary hybrid varieties combined with our unmatched agronomic experience and system advice helps ensure, when selecting a Seed Force beet variety, you have access to the whole beet package. It is this approach which helps ensure Seed Force is at the forefront of beet technology and can pass these benefits on to our customers and end users.
Seed Force grazing beet system

**benefits**

If you’re looking for one of the most cost-effective and consistent feed sources, Seed Force beet really is unbeatable. Combining high energy with high yields and high utilisation, it ticks all the boxes for feeding systems in New Zealand. Consider the benefits and discuss your requirements with Seed Force to see how beet can fit your system.

<table>
<thead>
<tr>
<th><strong>Seed Force grazing beet system benefits</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Full portfolio of proprietary hybrid grazing beet types</td>
</tr>
<tr>
<td><strong>2.</strong> Most experienced team of beet specialists</td>
</tr>
<tr>
<td><strong>3.</strong> High consistent yields from all Seed Force grazing beet types</td>
</tr>
<tr>
<td><strong>4.</strong> Use Seed Force beet to fit your feed requirements across seasons</td>
</tr>
<tr>
<td><strong>5.</strong> ME (High energy 12 MJME/kgDM)</td>
</tr>
<tr>
<td><strong>6.</strong> High utilisation in all systems</td>
</tr>
<tr>
<td><strong>7.</strong> One of the lowest cost/high energy feeds able to be incorporated into your system</td>
</tr>
<tr>
<td><strong>8.</strong> Increase your production and profitability with Seed Force grazing beet systems</td>
</tr>
<tr>
<td><strong>9.</strong> Seed Force grazing beet systems for all stock types</td>
</tr>
</tbody>
</table>
Seed Force SF Brigadier™ beet

Seed Force helped create the successful grazing systems for fodder beet that are now commonplace on farms throughout Australasia. These systems offer many benefits and have been implemented across a wide range of farm and animal types. Due to the high quality of the beet, potential increased animal performance and production are key benefits of fodder beet. With the various dry matters of fodder beet suited to different systems and stock types, Seed Force has a variety to suit any requirement.

Seed Force grazing type beets offer many benefits for in-situ feeding systems.

> Grazing versatility – timing of feeding and stock class. This is especially important for systems when early (late summer/early autumn) feeding is important. With SF Brigadier™ having the highest percentage of bulb above ground than any other beet variety, this easy access leads to extremely high levels of utilisation by the grazing animals. This is important in dry environments where high utilisation is still achieved due to a high proportion of bulb above ground.

> There is a Seed Force grazing beet for all stock types. Seed Force grazing systems are now successfully proven across a wide range of stock classes.

> Ability to self-harvest with specific beet buckets or other means is an ever-increasing practice on farm. Benefits are wide ranging, but key ones include creating room in the paddocks for stock, which helps with transition and ability to keep feeding beet in poor conditions (by harvesting and stockpiling beet as needed and feeding out on tracks/pads etc). Another key benefit is the ability to feed beet while animals are still on pasture rotations. This can help with transition as well as providing an energy boost and potential production gains.

> Liveweight gain/body condition score (LWG/BCS) are achievable when specific beet feeding systems are adhered to. High levels of LWG have been recorded in successful beef finishing operations and BCS increases are often achieved in winter feeding regimes for dairy cows. Discuss your specific requirements with Seed Force.

> Proven in high-feeding, ration environments – up to 12 kgDM/head/day (beet, adult cattle). These high feeding levels help ensure maximum potential is achieved from the beet, while remaining cost effective.

Seed Force grazing systems

1. SF Brigadier™ is utilised in many successful deer operations, note the exceptional utilisation.
2. Maintaining a healthy beet canopy is important for grazing systems, helping provide an adequate protein source.
3. SF Brigadier™ is particularly suitable for young stock systems.
4. SF Brigadier™ provides the highest proportion of bulb above ground ensuring very high utilisation by all stock classes.
5. SF Brigadier™ provides exceptional utilisation.
6. Seed Force grazing beets can be self-harvested for feeding out whole onto pasture.
7. Sheep system utilising SF Brigadier™.
8. Seed Force grazing beets are particularly suited to self harvest by beet buckets.
Mangel beet

**SF Brigadier™**

SF Brigadier™ is a traditional polyploid mangel type fodder beet with orange roots. SF Brigadier™ fodder beet sits higher out of the soil (>60%) compared to other forms of fodder beet. This suits in-situ grazing by animals. The roots of SF Brigadier™ are typically high in energy but low in crude protein. The tops have a lower energy value but good crude protein levels. Together they form a balanced nutritional feed.

The highest proportion of bulb above ground, together with the lowest DM%, helps ensure SF Brigadier™ is the most suitable for young stock. Its ability to carry good levels of quality leaf into the cooler months helps benefit these systems.

**Agronomic features:**
- Excellent versatility, suiting a range of systems
- The highest proportion of bulb above ground than any other commercially available variety
- Lowest bulb DM% available (up to 13%) = true mangel type
- Exceptional utilisation by any class of stock.

**Feed available**

Substantial yields of high quality grazable or self harvestable beets.

**Stock suitability**

All types whether grazed in-situ or self harvested and fed.

**Sowing rate for grazing/self-harvesting**

Precision sowing equipment 90,000-100,000 seeds/ha

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Low-medium DM% fodder beet

**SF Solidar**

SF Solidar is a genetic monogerm hybrid type fodder beet. Its yellow-orange cylindrical bulbs are 50%+ above the soil, helping ensure good utilisation.

SF Solidar will suit all stock types for grazing in-situ and/or self-harvesting and should be used when a genetic monogerm variety is preferred. It offers low - medium dry matter bulbs making it suitable for most grazing systems and environments.

**Agronomic features:**
- Genetic monogerm hybrid variety
- Yellow-orange cylindrical bulbs
- Versatile variety for grazing or self-harvesting
- High yield potential with low - medium dry matter.

**Feed available**

Substantial yields of high quality grazable or self harvestable beets.

**Stock suitability**

All types whether grazed in-situ or self harvested and fed.

**Sowing rate for grazing/self-harvesting**

Precision sowing equipment 80,000-100,000 seeds/ha
SF Blaze is a genetic monogerm type fodder beet with red roots. SF Blaze fodder beet has a high percentage of bulb above the ground allowing easy stock access and high rates of utilisation. It suits a range of feeding systems.

**Agronomic features:**
- Very high yielding variety with uniform bulbs
- The roots of SF Blaze are high in energy
- Well suited to in-situ feeding systems
- Low-medium dry matter.

Feed available

Stock suitability

Sowing rate for grazing/self-harvesting

Precision sowing equipment

80,000-100,000 seeds/ha

SF Blaze is a genetic monogerm type fodder beet with red roots. SF Blaze fodder beet has a high percentage of bulb above the ground allowing easy stock access and high rates of utilisation. It suits a range of feeding systems.

**Agronomic features:**
- Genetic monogerm hybrid variety with uniform tubular bulbs
- Versatile variety for grazing or self-harvesting
- High potential yields from medium - high DM%.

Feed available

Stock suitability

Sowing rate for grazing/self-harvesting

Precision sowing equipment

80,000-100,000 seeds/ha

SF 1505Bv is a newly released genetic monogerm hybrid type fodder beet. It offers medium - high dry matter ensuring maximum yield potential.

SF 1505Bv will suit both grazing in-situ or self-harvesting, ensuring feeding system versatility.

It offers a high leaf:bulb ratio which helps make it suitable for a range of grazing systems.

**Agronomic features:**
- Genetic monogerm hybrid variety with uniform tubular bulbs
- Versatile variety for grazing or self-harvesting
- High potential yields from medium - high DM%.
### Medium-high DM% fodder beet

**SF LIFTA™**

SF LIFTA™ is a high production medium-high dry matter harvestable fodder beet. Selected from Seed Force’s comprehensive fodder beet development programme, it offers excellent in-field performance. SF LIFTA™ offers excellent leaf quality.

Ideal for grazing and/or mechanical harvesting producing significant yields.

**Agronomic features:**

- Versatile fodder beet for grazing and/or harvesting
- Medium-high dry matter type
- Excellent leaf quality
- Genetic monogerm hybrid.

**Feed available**

- Substantial yields of high quality grazable or harvestable beets.

**Stock suitability**

- Older cattle when grazed in-situ. All types when lifted and fed.

**Sowing rate for in-situ grazing**

Precision sowing equipment

- 80,000-100,000 seeds/ha

**Sowing rate for harvesting**

Precision sowing equipment

- 100,000-120,000 seeds/ha

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### High DM% fodder beet

**SF Gitty**

SF Gitty is a newly released genetic monogerm hybrid type fodder beet. Offering the latest in beet breeding advancements, SF Gitty combines the agronomic benefits of high seed quality and plant evenness with the versatility traits of good bulb size and adequate proportion of bulb above ground.

SF Gitty’s high DM% helps ensure impressive yields, while consistent/even bulbs make SF Gitty suitable for a range of grazing and harvesting systems.

**Agronomic features:**

- Genetic monogerm hybrid variety
- Versatile variety for grazing or self/mechanical harvesting
- Distinctive pink consistent/even bulbs
- High DM% — high yield potential.

**Feed available**

- Substantial yields of high quality grazable or harvestable beets.

**Stock suitability**

- Older cattle when grazed in-situ. All types when lifted and fed.

**Sowing rate for in-situ grazing**

Precision sowing equipment

- 80,000-100,000 seeds/ha

**Sowing rate for harvesting**

Precision sowing equipment

- 100,000-120,000 seeds/ha
If you’re looking for one of the most cost effective and consistent feed sources, with an ME of 12 MJME/kgDM, whether harvested in April or October, SF SUGA® beet needs to be part of your spring cropping programme. SF SUGA® is a game changer that can help you achieve substantial increases in production.

<table>
<thead>
<tr>
<th>Benefits</th>
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</thead>
<tbody>
<tr>
<td>Ability to store longer than fodder beet due to higher DM%</td>
</tr>
<tr>
<td>Can be fed whole or chopped depending on your system</td>
</tr>
<tr>
<td>High harvested bulb yields possible due to very high DM%</td>
</tr>
<tr>
<td>Bred for mechanical harvesting – uniform plant size and crown height, unlike fodder beet</td>
</tr>
<tr>
<td>Perfect spring grass balancer – high energy 12 MJME/kgDM, low protein bulbs</td>
</tr>
<tr>
<td>High utilisation (95+% in all systems)</td>
</tr>
<tr>
<td>Grow on farm or buy in to suit your system</td>
</tr>
<tr>
<td>Logistics benefits over fodder beet = less loads for the same DM weight</td>
</tr>
<tr>
<td>Perfect for dairy and beef systems</td>
</tr>
<tr>
<td>Can be left in the paddock to harvest when needed until spring</td>
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</tbody>
</table>
While being part of the species that fodder beet also belongs to, SF SUGA™ beet differs in its attributes.

> Bred specifically for mechanical harvesting, SF SUGA™ beet is much more uniform in its appearance than fodder beet, which has direct benefits for harvesting. While fodder beet can be harvested, this can pose issues such as excessive harvest loss, which can be directly attributed to plant uniformity and crown height.

> With SF SUGA™ beet these harvest losses are minimised, most notably in the topping phase of harvest. The bulb shape and size of SF SUGA™ beet helps ensure a cleaner harvest than fodder beet which are often varied in their size. The aim for any mechanical harvesting of beet is to maximise returns by removing all leaf material but leaving the bulb fully intact.

> The key benefits of harvested SF SUGA™ beet are its consistent quality of 12MJME/kgDM and high utilisation of above 95% regardless of conditions. SF SUGA™ beet can be a versatile feed option fitting into a range of feeding systems and timings. With low protein bulbs, it combines well with spring grass production and can be fed whole or chopped depending on your system. It also has the ability to store longer than fodder beet due to its higher DM%.

> Many farmers are utilising SF SUGA™ beet in their systems now as a high-energy source with real production benefits. Uses are varied but typical uses are 5kgDM SF SUGA™ beet fed during lactation in a dairy system or higher levels fed out on pasture (up to 10kg/head/day) to dry cows or R2 steers balanced with high-quality pasture. Its quality can substitute more expensive alternatives in a daily ration. Whether purchased or grown on farm, this flexibility is one of its key advantages.

> Another key benefit SF SUGA™ beet has over fodder beet is its higher dry matter percentage leading to harvestable yield advantages, transport benefits and longer storability. If grown on farm rather than purchased this has huge implications on cost, as the higher the harvestable yield, the lower the cost per kilogram of dry matter. The logistics of cartage are also improved with the higher bulb DM% for SF SUGA™ beet. For example, carting 30 tonne fresh weight of beet in a truck and trailer equates to 5.4 tDM for a load of fodder beet at 18% DM vs. 6.9 tDM of SF SUGA™ beet at 23% DM which is a 30% advantage for SF SUGA™ beet in every load. The benefit is even greater if the SF SUGA™ beet DM% is higher, which is common.

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Very high DM% sugar beet

SF SUGA™

Agronomic features:
> The latest in sugar beet technology
> From one of the world’s leading breeding programmes
> Very high dry matter type
> Genetic monogerm hybrid
> Even crown height/bulb uniformity
> High utilisation in all systems

For successful harvest of SF SUGA™ beet, there are some key points which should be considered around harvesting and storage:

> Harvesters should be adjusted to ensure the maximum amount of bulb is harvested
> Crop should be uniform (benefit of SF SUGA™ beet) and weed-free
> Harvesting in good conditions will maximise harvest yield and minimise soil damage
> There should be minimal green leaf material left on harvested bulbs, to minimise respiration in storage
> Bulbs should not be 'scalped' (top of bulb removed) as this will reduce yield and cause respiration in storage
> Handle beet gently as bruised beet will respire more in storage
> SF SUGA™ beet should be stored in open areas that provide ventilation and cooling
> Site should be firm and free draining to allow access for loading/unloading

> Do not push beet up at the pit face, this can bruise the beet and restrict air flow
> ‘A’ shaped windrows are typically formed that are 2-2.5m high
> Allow ample room for stack as each tonne of fresh weight requires 1.5m³ of space.

Optimum defoliation
> all leaf removed
> bulb fully intact
> maximum yield achieved

Bulb ‘scalped’
> loss of yield
> 1cm slice of bulb from all beet can result in 12% reduction in yield
> adjust harvester to remove less bulb
> will respire/heat up in storage

SF SUGA™ beet harvesting & storage

Feed available
Substantial yields of high-quality harvestable beets. Harvested SF SUGA™ can be fed in any season.

Stock suitability
All types when lifted and fed (can be chipped in some systems.)

Sowing rate for harvesting
Precision sowing equipment 100,000-120,000 seeds/ha. Drill row spacing is set to suit the mechanical harvester being used - consult your harvesting contractor for advice.

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SF SUGA™ is a sugar beet variety with very high bulb dry matter. This helps ensure maximum harvestable yield and prolongs its storage ability. Specifically bred for mechanical harvesting, SF SUGA™ can add flexibility to many feeding systems.

The ability to be harvested across a range of seasons allows feed availability during key times.

Agronomic features:
> The latest in sugar beet technology
> From one of the world’s leading breeding programmes
> Very high dry matter type
> Genetic monogerm hybrid
> Even crown height/bulb uniformity
> High utilisation in all systems
Beet is a specialist crop - before growing, some key questions should be asked when farmers are considering beet. Beet’s full potential will only be achieved by good planning and following prescribed agronomic advice. The following information has been collated from specialist recommendations for New Zealand beet crops. Highlighted is specific information relating to key topics to help achieve optimum plant growth. As such, each paddock will still require specific management practices and this information is meant as a guide only.

Has an appropriate paddock been selected?
- Select free-draining paddocks that are able to be prepared to a good standard.
- Avoid paddocks where previous crops have had residual chemicals applied - check paddock history.

Has a recent soil test been carried out?
- Soil test early using a 150mm soil probe. Test pH of paddocks being considered for beet well before sowing, apply lime early. A pH above 6 is required, ideally 6.2.

When will paddock be able to be prepared and to an appropriate standard?
- Spray out and prepare seed bed as early as possible, using a double spray programme, check before adding any broadleaf sprays with knock down spray.
- Thorough soil preparation is crucial; dig down to depth to determine any pan layers. If found, recommend rip/sub soil 50mm below the compaction layer for optimum root penetration and access to moisture and nutrients at depth. This practice will also help avoid root formation issues on certain soil types.
- A fallow period should be used to help conserve soil moisture.
- Don’t over cultivate the soil; two surface passes is adequate for most seed beds, use straight spring tyne equipment if available, aim for 90% of seed bed to be particle size of 5mm or less.
- An even, fine, firm seed bed is essential (heel indent should just be seen). This step is crucial.

Has the correct fertiliser programme been selected for paddock and crop?
- Fertiliser use should be based on recent soil tests - beet requires specific nutrients to help reach its full potential. Discuss requirements with Seed Force.
- Select a paddock with relatively high available nutrients to help reduce artificial fertiliser requirements and to promote adequate growth.
- Base fertiliser should be applied and incorporated as part of last surface working (rates determined by an early soil test). If application is within 7 days of planting - split application to avoid potential plant burn at establishment.
- Fertiliser may only be of benefit down the spout at planting in very dry conditions and must be at least 50mm down and 50mm to the side of the seed (ensuring no seed to fertiliser contact).

Has the correct variety and seed type been used for your situation?
- Seed Force has a comprehensive range of hybrid beet types to suit a variety of situations, e.g. grazing or mechanical harvesting.

Is an appropriate drill/contractor available in your area?
- Best results are achieved using a precision planter. Make sure planter units are set to an even depth.
- Sow for optimum plant establishment, taking into account germination and potential field losses.
- Plant as early as soil conditions allow with good soil moisture (taking into account climate/location and beet type).
- Plant to a depth of 20mm (up to 25mm if needed for adequate seed soil moisture contact in certain conditions).
- Drill speed should be low, to avoid poor seed placement, 4-6 kph maximum.

Have insects been controlled?
- Apply insecticides prior to or at drilling. Monitor for insect pests post establishment.

continued...
Beet growing process (continued)

Are you aware of the crop’s nutrient requirements post sowing?
> Crop will require specific post-establishment nutrients. Rates and type will be dependent on crop and target yields. Monitor and apply when required. Discuss requirements with Seed Force.

Have appropriate herbicides and application timings been organised?
> Beet requires specific chemical formulations for weed control. These should be organised well in advance.
> Apply post-plant/pre-emergence herbicide after sowing. Conditions are dry this may have to be applied and incorporated prior to sowing.
> Plan herbicide programme based on expected weeds, and to avoid delay in correct timing of application.
> Recommend fine/mist spray; avoid spraying in the heat of the day.
> Addition of mineral oil to spray will help with adhesion/effectiveness.

Plant health
> Beet yellows virus is prevalent in many areas, this virus can cause major yield reductions if it is experienced before the 16 leaf stage. If the virus is experienced later in the canopy stage, its yield reduction potential is reduced. Recommend seed treatment to help ensure early plant protection.
> Mildew (Powdery) can cause up to a 20% yield reduction and is most commonly experienced in dry environments.
> Rust can cause a 5-10% yield reduction and is most commonly experienced in moist/damp environments. Cercospora can cause significant yield reductions and is most commonly experienced in warm/humid environments. Multiple fungicide applications may be necessary for adequate control in certain circumstances.
> Use of registered fungicide is strongly recommended to help support the agronomy programme outlined above. Its use not only helps prevent the development of specific disease but acts to support green leaf retention. Its properties ensure adequate canopy health without excessive leaf growth which can limit bulb development.

> Timing of fungicide should be at the outset of disease when early infection is first visible, in most areas this will be late Jan/early Feb. Recommend two applications with timing between each of four weeks.
> Ensure fungicide withholding periods for grazing are adhered to.

Has everyone who will be involved with the crop post sowing been advised of their responsibility?
> Ensure all involved are aware of crop and its need for constant early monitoring and control of weeds and pests.
> Spraying contractor should be organised and notified of control well in advance. Correct application timing is crucial.
> Remove any bolters if present before seed set.
For more information contact Seed Force.

Asking appropriate questions and following prescribed advice will help reach crop’s potential. Ensuring everyone involved with crop is aware of their responsibility will help achieve this. Seed Force offers experienced advice regarding beet systems specifically for New Zealand conditions. For more information contact Seed Force.

Beet growing process

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