

# Forage crop guide

# Seed Force in Australia.

Since its inception in 2006 Seed Force has become the leading innovative proprietary forage seed business in Australia. The business model has been based on aligning with world leading plant breeding companies and institutions in Europe, N & S America, New Zealand and Australia and screening new breeders' lines against industry standards in Australia. Seed Force then commercialises new varieties that offer significant benefits to farmers over existing commercial varieties in Australia.

Seed Force has now developed an integrated crop and pasture business in Australia covering all major pasture

species plus broadacre seed varieties covering winter wheat, spring barley, winter and spring canola.

We also have a very strong range of high performing forage crops from grazing cereals and forage sorghums to forage brassicas, herbs and the exciting re-birth of fodder beets into the Australian market.

Not only do we screen breeder's lines to find new varieties that can offer significant benefits over existing commercial varieties, we also spend considerable research investment in developing best management guidelines to help producers maximise returns from these crops.

# Forage crop selection

Seed Force has trialed and screened a wide range of forage crop options for filling feed gaps under grazing or for conserving as fodder for feeding back.

The selection guide below can help you select the best crop options to suit your needs. You can then refer to the specific information for that crop in this guide and check any management guidelines to help maximise your returns from that crop.

Region	When required	Characteristics	Species	Variety	Planting time
SOUTHERN	winter/spring	quick feed, fodder conservation option	oats	SF Colossus	autumn
		quick feed, fodder conservation option	oats	SF Tucana	autumn
		quick feed, fodder conservation option	triticale	SF Bolt	autumn
	summer, cool climate	summer feed, enable early re-sow	leafy turnip	SF Pacer	spring
		high quality, summer feed, single graze	turnip	SF G2	spring
	summer/autumn, cool climate	high quality, summer feed, 2-3 grazings	forage rape	SF Greenland	spring
	summer, warm climate	summer feed, focus on quality grazing	BMR sudan grass	SF Beamer BMR	spring
		fast summer feed, grazing and/or cutting	forage sorghum	SF Flourish	spring
		summer feed, high quality grazing and/or cutting	BMR forage sorghum	SF Mustang BMR	spring
		summer feed, delayed harvest but maintain quality	PPS forage sorghum	SF Splendour	spring
	autumn/winter	high quality, high yield for strip grazing	mangel beet	SF Brigadier	spring
		high quality, high yield for strip grazing or lifting	fodder beet	SF Lifta	spring
		high quality, high yield for lifting and feed out	sugar beet	SF Suga	spring
	all seasons	excellent quality, good rainfall, 2-4 years	chicory	SF Punter	autumn or spring
good quality, harsher summers, 2-4 years		plantain	SF Endurance	autumn or spring	
NORTHERN	winter	fast feed, highest quality, highest winter yield	leafy turnip	SF Pacer	autumn
		single graze winter feed	turnip	SF G2	autumn
	winter/spring	highest quality, highest winter/spring yield	forage rape	SF Greenland	autumn
		quick feed, fodder conservation option	oats	SF Colossus	autumn
		quick feed, fodder conservation option	oats	SF Tucana	autumn
		quick feed, rust resistant fodder option	oats	SF Empire	autumn
		early plant, high quality grazing	winter wheat	SF Moskito	late summer/autumn
	late spring/summer	high quality, high yield for strip grazing	mangel beet	SF Brigadier	autumn
		high quality, high yield for strip grazing or lifting	fodder beet	SF Lifta	autumn
		high quality, high yield for lifting and feed out	sugar beet	SF Suga	autumn
	summer	summer feed, focus on quality grazing	BMR sudan grass	SF Beamer BMR	spring/early summer
		fast summer feed, grazing and/or cutting	forage sorghum	SF Flourish	spring/early summer
		summer feed, high quality grazing and/or cutting	BMR forage sorghum	SF Mustang BMR	spring/early summer
		summer feed, delayed harvest but maintain quality	PPS forage sorghum	SF Splendour	spring/early summer
	all seasons	excellent quality, good rainfall, 2-4 years	chicory	SF Punter	autumn or spring
		good quality, harsher summers, 2-4 years	plantain	SF Endurance	autumn or spring

# Getting the best from Forage Brassicas

Forage brassicas are well established as a valuable tool for livestock producers. They provide sowing options for most seasons to provide high quality feed to fill both quantity and quality feed gaps.

They also offer opportunities for crop rotations for disease management and to combat difficult weeds such as barley grass and wimmera ryegrass in grazing and mixed farming situations.

The following pages can help producers to get the best from forage brassicas by providing key information:

- selecting the most appropriate option,
- understanding the time to graze,
- crop agronomy advice,
- grazing management advice, and
- the extra value of sowing better varieties.

Forage brassicas cover the species rape, leafy turnips, turnips, swedes, kale and radish. These forages have outstanding feed quality and water use efficiency across various seasons. When fed as part of a balanced ration they can produce high animal performance especially when traditional pastures have poor quality.

Forage brassicas have been used for winter feed mainly in cold climate regions where extremely cold temperatures, frosts and snow reduce traditional winter feed production. In many parts of Tasmania and the tablelands of NSW winter turnips and kale are sown under cool summer conditions to provide high quality winter feed.



Forage rapes with very late flowering and longer growing seasons can also be sown at this time to produce winter feed with additional re-growth potential. Forage brassicas fit well into livestock production systems and can also provide significant benefits as a high quality summer feed. They can be sown from late winter through spring and provide high quality feed when the existing pasture feed base starts to lose quality.

They can be used to clean up a run-down pasture. This is best achieved by spraying to control all weeds and preparing a seedbed for a forage brassica that can then be followed up by direct drilling a new pasture or winter crop. Forage brassicas are high in quality and can enable liveweight gains to be maintained at similar levels to the spring pasture flush, as well as maintain high milk production when fed as part of the ration to dairy cows. When fed they have a similar feed value to grain, but at a much lower cost.



## Single grazing options

Turnips can produce very high yields for a one-off grazing, enabling paddocks to be prepared early for re-sowing.

They can be sown at low rates (0.8–2kg/ha) and provide feed from 10–12 weeks after planting.

## Multiple grazing options

Where producers are not planning to early autumn sow, or where they are looking for brassicas to fill the critical autumn feed pinch, forage rapes or leafy turnips offer an excellent option.

Forage rape maintains high quality feed over late summer and autumn. Re-growth from rain will be faster than any early pasture sowing as rape's deep root system ensures good persistence during the hot dry summer and rapid response from autumn rain.

Leafy turnips provide much faster feed as they are more shallow rooted putting reserves into above ground growth. They also have faster regrowth than forage rape.

As such they are best suited to mild growing conditions or where feed is required rapidly.



# Forage brassica management

## Maximising forage yield

- > Forage brassicas will handle a broad pH (CaCl<sub>2</sub>) range from 4.6–8.6.
- > Ensure up to date soil or plant tissue test information to identify potential nutrient deficiencies.

### 1. Weed and pest prevention

- > Sow into a weed free seedbed.
- > Spray any existing weeds with glyphosate and tank mix with insecticide for any pests.
- > Consider pre-emergent application of Trifluralin if wireweed is likely to be a problem.

### 2. Sowing

- > Brassicas should be shallow sown (5–10mm) and covered with roller, chain or mesh.
- > Sow rape at 3–5kg/ha; turnips at 0.8–2kg/ha, using higher rates for higher rainfall or rougher seedbeds.
- > Sow with Triple Super into worked paddocks, use MAP or DAP if direct drilling.
- > Sow with around 20kg P/ha, using low sulphur based fertilisers.
- > Address any trace element deficiency, especially molybdenum and boron.

### 3. Monitor and treat for pests

- > Forage rape is susceptible at emergence to pests, especially Red-Legged Earth Mite
- > We recommend Force Field PLUS, protection for your seed.

### 4. Apply Nitrogen 3–4 weeks after establishment

- > To increase yields apply up to 60kg N/ha (125kg/ha Urea) 3–4 weeks after establishment.
- > Do not apply nitrogen within four weeks of feeding off crop.



# Grazing the crop

## 1. Graze at maturity

- > Forage brassicas should be allowed to mature to minimise risks of stock health disorders.

## 2. Transition

- > Allow generous transition time for grazing any brassica crop.
- > Sudden access can upset the balance of rumen microbes, resulting in poor animal performance, scouring and acidosis.
- > When introducing animals to brassica crops, allow stock access to pasture, or feed out hay, straw or silage before grazing the crop.
- > Begin grazing the crop for short periods each day, building up to a maximum allowance over a week.

## 3. Provide fibre

- > Forage brassica crops are highly digestible, and don't contain much 'effective fibre', the sort of fibre that makes animals chew.
- > Feeding extra effective fibre means more chewing producing saliva which is a rich source of bicarbonate that buffers rumen pH. More effective fibre means less acid in the rumen and fewer digestive upsets.
- > Continue feeding out hay, straw or silage even when stock have adjusted to the crop.

## 4. Break feed

- > This ensures that the high quality leaf is balanced with stalks or bulbs.
- > This will provide less wastage through trampling and fouling.
- > Forage brassicas can also be grazed in conjunction with summer dry pastures or crop stubbles to balance the diet.

## 5. Animal health

- > Be aware of potential high nitrate risks under overcast conditions.
- > Grazing high quality brassicas can put animals at risk of pulpy kidney. Ensure that all stock are drenched and vaccinated at least seven days before grazing the crop.



# SF Pacer

leafy turnip

# SF Greenland

forage rape

FEATURES	BENEFITS	Sowing rate 3–5kg/ha
Fast to first grazing	Can provide earlier feed for livestock	 <b>6-8 weeks after sowing</b>
Higher yielding	Can deliver more liveweight gain or milk per hectare	 <b>Australian release &gt; 2007</b>
Improved re-growth potential	Provides more feed from later grazings	 <b>Stock suitability &gt; Dairy, sheep &amp; beef</b>
Reduced bolting	Provides better quality longer	

## Setting the pace

SF Pacer has been bred as a replacement for Pasja by its plant breeder. It was selected from four breeder's lines bred and evaluated for increased yield, improved re-growth and reduced bolting between grazings.

In Australian and New Zealand trials it has shown rapid establishment, fast growth to first grazing and outstanding re-growth.

FEATURES	BENEFITS	Sowing rate 3–5kg/ha
Late flowering	Can be sown all year round with adequate moisture	 <b>10-12 weeks after sowing</b>
Traditional maturity	Can graze when crop is ripe based on sowing time and location	 <b>Australian release &gt; 2006</b>
High yielding	More profitable than other forage rape options	 <b>Stock suitability &gt; Dairy, sheep &amp; beef</b>
Excellent re-growth	Will provide more feed from later grazings	

## The new benchmark for forage rape

SF Greenland is a high yielding forage rape that can be used by dairy, beef and sheep producers to produce high quality feed in any season where moisture during growing season will allow.

Due to its late flowering, SF Greenland is well suited to sowing during late summer until spring.

It is consistently producing high yields when sown for either winter or summer feed.

SF Greenland is fast becoming the rape of choice for producers looking to improve their profitability from growing forage rape.

## Forage EBV's – compared to industry standards\*

LEAFY TURNIP	SOWING RATES	MATURITY	GRAZINGS	YIELD PASJA = 100	EXTRA MEAT VALUE	EXTRA MILK VALUE
<b>SF Pacer</b>	<b>3–5kg/ha</b>	<b>28–56 days</b>	<b>Multiple</b>	<b>116</b>	<b>+\$227</b>	<b>+\$656</b>
Hunter	3–5kg/ha	28–56 days	Multiple	103	+\$47	+\$123
Pasja	3–5kg/ha	28–56 days	Multiple	100	\$0	\$0

\* Relative yields based on four replicated Australian trials; Gundagai, Macarthur, Warrnambool and Caramut 2006–2009.

\* Meat value estimated using 70% utilisation of feed and \$2.50/kg liveweight gain, and milk value estimated using 80% utilisation of feed and 40c/litre milk.

## Forage EBV's – compared to industry standards\*

FORAGE RAPE	SOWING RATES	MATURITY	GRAZINGS	YIELD WINFRED = 100	EXTRA MEAT VALUE	EXTRA MILK VALUE
<b>SF Greenland</b>	<b>3–5kg/ha</b>	<b>70–90 days</b>	<b>Multiple</b>	<b>123</b>	<b>+\$402</b>	<b>+\$1,179</b>
Goliath	3–5kg/ha	84–100 days	Multiple	116	+\$281	+\$832
Titan	3–5kg/ha	70–92 days	Multiple	103	+\$52	+\$149
Ace	3–5kg/ha	70–93 days	Multiple	102	+\$47	+\$110
Winfred	3–5kg/ha	60–90 days	Multiple	100	\$0	\$0

\*Relative Forage Ratings based on relative data from 10 different trials at Denman, Gundagai, Caramut, Warrnambool, Cressy and Whitemore 2003–2009.

\*Meat value estimated using 70% utilisation of feed and \$2.50/kg liveweight gain, and milk value estimated using 80% utilisation of feed and 40c/litre.



# SF G2

globe turnip

FEATURES	BENEFITS	Sowing rate 0.8–2kg/ha
Later maturing globe turnip	Can be grown to use as deferred winter feed. Also suitable for late summer and autumn feed	 <b>14-16 weeks after sowing</b>
High keeping quality bulb	Keeps good quality well over winter under wet and frosty conditions	 <b>Australian release &gt; 2009</b>
High ratio of palatable leaf	Higher energy in leaf can enable greater conversion to meat or milk	 <b>Stock suitability &gt; Dairy, sheep &amp; beef</b>
<p><b>The winter turnip</b></p> <p>SF G2 is a new diploid, green-skinned, white fleshed turnip. It is a later maturing round traditional globe turnip for winter use.</p> <p>It is a high quality bulb that will keep well over winter, plus a high ratio of palatable leaf.</p> <p>It is an ideal replacement for Green Globe.</p>		

## Forage EBV's – compared to industry standards\*

GLOBE TURNIP	SOWING RATES	MATURITY	GRAZINGS	LEAF YIELD	BULB YIELD	TOTAL YIELD
<b>SF G2</b>	<b>0.8–2kg/ha</b>	<b>100–130 days</b>	<b>Single</b>	<b>125</b>	<b>120</b>	<b>123</b>
Green Globe	0.8–1.5kg/ha	100–130 days	Single	100	100	100

\* Based on yields from Cressy 2006–2007 and Warrnambool 2007–2008.

\* Based on 16 trials in New Zealand 2006–2008.

# Specialty Forages

Most will be familiar with forage crops such as grazing cereals, forage sorghums and forage brassicas, but there are other specialty forages performing well on farm and worthy of consideration that are detailed in this guide.

Further specific information on these can be obtained by talking to your local Seed Force Territory Manager or technical staff.

## Forage herbs

These can be used as a component of a perennial pasture or used as medium-term forage crops. The details below refer to their use as forage crops.

**Chicory** is a very high-quality forage herb with low NDF%, very high ME and good Crude Protein% that can be used for either fattening lamb or beef cattle or strip grazing by dairy cows. It can be sown alone or with a companion legume to provide nitrogen boost, such as lucerne, white, red or sub-clover depending on soil type and climate.

It will usually last 2-4 years depending on variety, growing conditions and grazing management. It will regenerate from seed, and is best suited to higher fertility situations. Whilst it is desirable to sow into clean seedbeds, weeds can be controlled in chicory with many pasture herbicides.

**Plantain** is also a high-quality forage herb with low NDF%, high ME and good Crude Protein% that can be also used for either fattening lamb or beef cattle or strip grazing by dairy cows. It can also be sown alone or with a companion legume to provide nitrogen boost, such as lucerne, white, red or sub-clover depending on soil type and climate.

Plantain is more drought hardy and adapted to low fertility situations. It will regenerate from seed, but loses feed quality as it matures. Plantain needs to be sown into clean paddocks free of weeds, as broadleaf weed control options are extremely limited.

## Fodder beet

Fodder beet is an exciting new crop with high quality forage yields of 20-40t DM/ha able to be grown in 4-6 month growing seasons depending on time of sowing and location.

The crop can be split into 3 main types:

- > **Mangels** - low DM% (<13%), large bulb growing about 70-80% out of the soil with large amount of leafy top. It has the highest levels of utilisation and is the best option for strip grazing.
- > **Fodder beets** - mid range DM% (13-20%) with around 50% of the bulb below ground. They can be grazed or mechanically harvested, and have lower utilisation than mangels.
- > **Sugar beets** - high DM% (20-30%) with most of the bulb growing beneath the ground. These are suited to mechanical harvesting and longer storage due their high dry matter, harder bulbs.

Production and feeding of fodder beets requires specific advice and we recommend that if you want to try this exciting new crop, that you seek a plan from your local Seed Force territory manager.



# SF Punter

chicory

FEATURES	BENEFITS	Sowing rate	
Excellent quality feed	Suited to mixes for 3–5 years. Can regenerate from seed to thicken up in sward	Sole species	4–5kg/ha
Low dense crown high tillering variety	Better establishment and year round feed. Ideal companion species to pastures mixes	pasture mixes	1–2kg/ha
Persistent medium-term option	Suited to mixes for 3–5 years. Can regenerate from seed to thicken up in sward	 <b>highly winter active</b>	
<p><b>Don't take a punt on any old chicory</b></p> <p>SF Punter is a deep rooted perennial herb providing outstanding summer productivity and feed quality. It has high mineral uptake and is extremely persistent. It provides a high energy forage with proven animal health benefits and increased animal production at a time of year when pasture quality is low. Being more winter active than some varieties, SF Punter can be sown at any time when there is adequate moisture for good germination and establishment.</p>		 <b>Australian release &gt; 2006</b>	
<p><b>Stock suitability &gt; All livestock types</b></p> 		 <b>Australian release &gt; 2011</b>	

## Forage EBV's – compared to industry standards\*

CULTIVAR	AUTUMN	WINTER	SPRING	SUMMER	TOTAL
<b>SF Punter</b>	<b>118</b>	<b>164</b>	<b>123</b>	<b>100</b>	<b>122</b>
Puna	100	100	100	100	100

\* Data based on mean of yields from Gundagai 2007–2009 and Tenterfield trial 2011–2013.



# SF Endurance

plantain

FEATURES	BENEFITS	Sowing rate	
Mid season maturity	Suited to a broader range of environments	Sole species	5–8kg/ha
All season growth	Fills more than one feed gap	pasture mixes	1–2kg/ha
Frost tolerant	Will still grow feed in extreme winter cold	 <b>late flowering</b>	
<p><b>Feed for all seasons</b></p> <p>SF Endurance is a new forage plantain with improved feed production across all seasons. Plantain is a drought hardy deep rooted perennial herb well adapted to low fertility soils. Existing varieties have either been winter active and early flowering or summer active and late flowering. SF Endurance provides similar winter feed to Tonic, but with improved warm season production. It is ideal for pasture mixes where producers are looking for a contribution from plantain across all seasons.</p>		 <b>Australian release &gt; 2011</b>	
<p><b>Stock suitability &gt; All livestock types</b></p> 		 <b>Australian release &gt; 2011</b>	

## Forage EBV's – compared to industry standards\*

PLANTAIN	AUTUMN	WINTER	SPRING	SUMMER	TOTAL
<b>SF Endurance</b>	<b>97</b>	<b>93</b>	<b>93</b>	<b>107</b>	<b>100</b>
Tonic	100	100	100	100	100
Boston	82	71	86	108	93

\* Data based on yields from Tenterfield trial 2011–2013.



# SF Brigadier

fodder beet

AGENCY

FEATURES	BENEFITS	Sowing rate 80–100,000 seeds/ha
High sugar feed option	Very good palatability for all livestock classes	<b>16–26 weeks after sowing</b>
Very high potential yields	Can yield up to 20–40t DM/ha. Profitable crop option	<b>Australian release &gt; 2008</b>
Good weed and pest rotational crop	Sound option to avoid Diamondback moth problems	<b>Stock suitability &gt; All livestock types</b>

## High yields were never this sweet

SF Brigadier is a traditional polyploid, mangel type fodder beet with orange bulbs. The bulb sits high up out of the soil and is ideal for grazing in-situ by all livestock classes. Its high sugar level makes it very palatable.

Fodder beet is a well known crop, but with new genetics and better management practices it is gaining rapid interest for its ability to produce very high yields of high quality forage. It is typically sown in spring using specialist seeders and has a 4–6 month growing period.

SF Brigadier offers new genetic potential and is capable of producing 20–40t DM/ha for late autumn and winter grazing. It is not a brassica but a member of the beet family and offers the opportunity to break the traditional weed and pest cycle of brassicas, particularly for Diamondback moth.

You should seek specialist advice from Seed Force if considering growing this exciting crop.

## Forage EBV's – compared to industry standards\*

FODDER BEET	SOWING RATES ALONE	MATURITY	GRAZINGS	ME MJ/KG DM	CRUDE PROTEIN	YIELD
SF Brigadier	80–100,000	16–26 weeks	Single	12.5–13.5	6–8%	Up to 40t



# SF Lifta

fodder beet

AGENCY



FEATURES	BENEFITS	Sowing rate 80–100,000 seeds/ha
Very high yielding	Well suited to mechanical harvesting	<b>16–26 weeks after sowing</b>
Suited to in-situ grazing	Genetic monogerm hybrid	<b>Australian release &gt; 2015</b>
High dry matter bulbs	Good seedling vigour	<b>Stock suitability &gt; All livestock types</b>

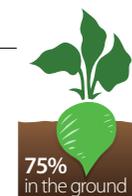
SF Lifta is a versatile hybrid fodder beet with high dry matter - 17-19%. It offers growers the ability to graze in-situ or mechanical harvest for storage and feeding. It has excellent leaf disease resistance to powdery mildew and rust.



# SF Suga

sugar beet

AGENCY



FEATURES	BENEFITS	Sowing rate 100,000–120,000 seeds/ha
Very high yielding	Well suited to mechanical harvesting	<b>16–26 weeks after sowing</b>
Suited to in-situ grazing	Genetic monogerm hybrid	<b>Australian release &gt; 2014</b>
High dry matter bulbs	Good seedling vigour	<b>Stock suitability &gt; All livestock types</b>

SF Suga is the latest technology in sugar beet. It has high dry matter - 23-26%, making it a high yielding option for mechanical harvest. This high DM% helps prolong its storage ability.

# Grazing cereals

Livestock producers have grazed most cereal species for many years, either as dual-purpose graze and grain options, specifically for grazing only, or for grazing and fodder conservation.

Graze and grain options have traditionally included white wheat varieties that can be grazed and then locked up to produce high protein premium quality grades, plus more limited use of oats, barley and triticale.

More recently the introduction of (mainly red) winter wheats from Europe has enabled crops to be planted earlier, produce forage quicker, produce higher grain yields and have reduced risk of sprouting. But they are currently all rated as feed wheats as there is no segregation for premium milling quality red wheats in Australia.

Seed Force has a range of graze and grain winter wheats including **SF Ovalo**, **SF Adagio**, **RGT Accroc** and **RGT Zanzibar**. For information about these contact Seed Force for a copy of our winter crop guide or check our website – [www.seedforce.com](http://www.seedforce.com)

We do have some specialist cereals suited to either grazing or grazing and fodder conservation which are included in this guide.

## Grazing guidelines

Ideally crops should be grazed when they are well anchored and have commenced tillering – Zadok's stage 21-29. They can be continually grazed maintaining a residual of 1000-1500kg DM/ha (5-10cm for prostrate varieties and 10-20cm for erect types).

They should be locked up at stem elongation but before seed head development – Zadok's stage 31 at the latest.

## Grazing cereal options

**Grazing winter wheat** – best sown late summer or early autumn where there is adequate moisture.

They can be sown earlier than spring wheats and other cereals as they require vernalisation to initiate head development. Seed Force has selected a late flowering, awnless winter type especially for grazing and production of higher quality forage.

**SF Moskito** is a prostrate type and can be grazed hard much earlier than most other options. It also has good aphid resistance.

**Grazing oats** – should be sown when soil temperatures are below 25°C with adequate soil moisture. They should be grazed when they will withstand pulling and canopy has closed.

If they are to be cut for conserved fodder, they should be locked up.

For varietal choice refer crop selection table on page 3. In areas of high humidity and increased risk of rust, we only recommend the use of **SF Empire** oats.

**Grazing triticale** – has an advantage in light acid soils with high exchangeable Aluminium levels. It is however, more susceptible to frost damage and requires later sowing in frost-prone regions. Seed Force has selected a specialist variety with high forage yield and excellent recovery after grazing for silage.

**SF Bolt** is not suited to hay production.



# SF Colossus

forage oats

FEATURES	BENEFITS	Sowing rate	
Rapid establishment	Faster to first grazing with more winter feed	Autumn	75–80kg/ha
Medium seed size	Slightly lower sowing rate	Winter	80–100kg/ha
Mid-late maturity	Maintains quality for conserved fodder	 <b>mid - late maturity</b>	
<b>Bulk winter feed faster</b> SF Colossus is a mid-late flowering forage oat with suitability to grazing and high quality hay. It has medium seed size enabling slightly lower seeding rate than larger seeded varieties, and a heavier seeding rate than Saia oats. It has rapid establishment with wide leaves and tillers well. It is best suited to early grazing as this will encourage tillering and prevent lodging if locked up as a hay or grain crop. SF Colossus is mid-late flowering and in local trials has shown to be about 3 weeks later flowering than Wintaroo and 4 weeks later than Swan oats. Its later maturity makes it ideally suited to cutting for hay or mixing with other species for specialist use.		 <b>Australian release &gt; 2011</b>	
		 <b>Stock suitability &gt; All livestock types</b>	



## SF Tucana

forage oats



## SF Empire

forage oats

FEATURES	BENEFITS	Sowing rate 80–100kg/ha
Multi-grazing variety	Can provide increased grazing returns	 <b>mid - late maturity</b>
High yielding	For either increased grazing or hay production	 <b>Australian release &gt; 2014</b>
Late flowering	Suitable for producing high quality	 <b>Stock suitability &gt; All livestock types</b>
Large broad leaf	Improves quality and overall yield	
<p><b>Leafy oat for grazing, hay &amp; silage</b></p> <p>SF Tucana is a mid-late flowering forage oat suitable for multiple grazings and lock up for high yields of high quality hay. It is about 7 days later flowering than SF Colossus and better suited to mixing with forage legumes such as clovers or vetch to increase hay quality.</p>		

FEATURES	BENEFITS	Sowing rate
Warm start capability	Earlier planting opportunity	northern (dry winters)   50–80kg/ha
Strong initial growth	Faster winter feed	southern (wet winters)   80–100kg/ha
Improved resistance to leaf rust	Improved palatability & better quality feed	 <b>late flowering</b>
Late maturity	Longer growing season & better quality hay	 <b>Australian release &gt; 2016</b>
Fine leaves	Handles dry conditions better	 <b>Stock suitability &gt; All livestock types</b>
<p><b>Improved resistance to leaf rust</b></p> <p>SF Empire is a new mid-late flowering forage oat with improved resistance to leaf rust. It is an erect type oat with good tillering ability, and a proportion of thinner tillers which assists in recovery after cutting or grazing.</p> <p>SF Empire has good warm soil tolerance and can be planted early (late summer/early autumn) particularly in areas that receive good summer rain.</p> <p>Being late flowering it can be grazed over an extended period and will make better hay or silage than earlier flowering types.</p>		

### Forage EBV's – compared to industry standards\*

VARIETY	DALBY 2015		GATTON 2015		ROMA 2015		GLOUCESTER 2015		MURWILUMBAH 2016		MEAN	
	T/HA	% TAIPAN	T/HA	% TAIPAN	T/HA	% TAIPAN	T/HA	% TAIPAN	T/HA	% TAIPAN	T/HA	% TAIPAN
<b>SF Empire</b>	<b>6.4</b>	<b>91</b>	<b>9.06</b>	<b>104</b>	<b>3.95</b>	<b>109</b>	<b>10.29</b>	<b>120</b>	<b>3.35</b>	<b>124</b>	<b>7.43</b>	<b>110</b>
Taipan	7.1	100	8.68	100	3.64	100	8.60	100	2.70	100	7.01	100
Aladdin	7.5	106	11.83	136	4.32	119	8.32	97	3.43	127	7.99	117

# SF Bolt

forage triticale

FEATURES	BENEFITS	Sowing rate 120–150kg/ha
Unique double haploid breeding technology	Uniform crop maturity for ease of harvest	 <b>mid-season maturity</b>
Good rust resistance	Reduced need for expensive fungicides	 <b>Australian release &gt; 2013</b>
Lower NDF % and higher ME grain	Greater intake with more energy for milk	 <b>Stock suitability &gt; All livestock types</b>
Good lodging tolerance	Easier harvesting with less wastage	

## Dual purpose forage cereal

SF Bolt is a new forage triticale that can be autumn or spring sown, ideally suited for green chop or whole crop cereal silage. It is the latest in forage triticale technology using unique double haploid breeding. It is unsurpassed in crop uniformity. This provides the benefit of all plants maturing at a similar time, therefore enhancing ease of harvest and enabling consistent yields across the paddock. SF Bolt has very good resistance to rust and other diseases potentially reducing the use of expensive fungicides that other older varieties may require. It offers the typical characteristics of a high production forage triticale with very good metabolisable energy and carbohydrate levels.

# SF Moskito

forage wheat

FEATURES	BENEFITS	Sowing rate 80–100kg/ha
Winter type	Earlier planting opportunity	 <b>late flowering</b>
Strong recovery after grazing	More grazing potential	 <b>Australian release &gt; 2017</b>
Awnless variety	Improved palatability when conserved as silage Ideal for whole crop silage	
Late maturity	Longer growing season and better quality hay	 <b>Stock suitability &gt; All livestock types</b>

## For grazing and fodder conservation

SF Moskito is a new winter wheat specifically selected for grazing and fodder conservation.

It is an awnless variety with good tillering ability and more prostrate habit and will be more palatable than awned varieties when made into silage.

SF Moskito has good feed quality and can be planted early (late summer/early autumn) particularly in areas that receive early autumn rain or have irrigation.

Being a winter type, it requires cold vernalisation, so will not flower from early plantings like spring wheats.

It is ideally suited to conserving as whole crop silage at milky dough stage of crop.

## Summer crop efficiency

Forage sorghum is more water use efficient than millet and can provide consistent yields even under limited dryland rainfall situations.

Results from many Seed Force trials highlight the fact that forage sorghums are around twice as efficient as millet.

Location		Gundagai	Numurkah	Gundagai	Murwillumbah	Shepparton	Mean
year	measure	2008/09	2008/09	2009/10	2015/16	2016/17	all sites/years
<b>best variety</b>	kg DM/ha	7,192	8,920	11,399	9,668	7,524	<b>8,941</b>
	% millet	285%	189%	281%	229%	171%	<b>231%</b>
<b>sudan grass</b>	kg DM/ha	4,582	8,032	10,428	11,261	5,907	<b>8,042</b>
	% millet	181%	170%	257%	266%	134%	<b>202%</b>
<b>sorghum x sudan</b>	kg DM/ha	5,691	7,162	10,976	10,018	6,762	<b>8,122</b>
	% millet	225%	152%	270%	237%	153%	<b>208%</b>
<b>sweet sorghum</b>	kg DM/ha	4,431	5,542	9,215			<b>*6,901</b>
	% millet	175%	117%	227%			<b>173%</b>
<b>Millet</b>	kg DM/ha	2,526	4,723	4,058	4,228	4,412	<b>3,989</b>
	% millet	100%	100%	100%	100%	100%	<b>100%</b>

mean yields for all varieties of sudangrass, sorghum x sudan, sweet sorghum  
\* adjusted to 173% of millet mean.

### Efficiency and profitability.

In 2008/09 Seed Force set up a split paddock trial to examine the efficiency of millet vs forage sorghum under both irrigation and dryland. Whilst most producers and advisors would examine the relative costs of feed and opt for millet, the superior WUE of sorghum showed higher profitability in both cases.

#### Irrigated dairy split paddock trial results

	Millet	Forage sorghum
<b>Yield (kg DM/ha)</b>	7,240	16,964
<b>NDF (%)</b>	53.33	55.33
<b>ME (MJ / kg DM)</b>	9.07	8.93
<b>Daily milk from crop (litres / day)</b>	5.90	4.76
<b>Total milk from crop (litres / ha)</b>	2373	4658
<b>Price</b>	0.45	0.45
<b>Gross Income (\$/ha)</b>	\$1,067	\$2,096
<b>Total costs (\$/ha)</b>	\$306	\$430
<b>Gross Margins (\$/ha)</b>	\$709	\$1,666
<b>Extra Profit from forage sorghum</b>		+\$957

The irrigated trial showed improved water use efficiency from **27kg DM/mm rain** for shirohie millet to **63kg DM/mm rain** for forage sorghum.

#### Dryland beef split paddock trial results

	Millet	Forage sorghum
<b>Yield (kg DM/ha)</b>	2,526	6,011
<b>NDF (%)</b>	52.5	54
<b>ME (MJ per kg DM)</b>	9.3	9.3
<b>Ave daily gain (kg/hd/day)</b>	0.439	0.400
<b>Liveweight gain (kg lwg/ha)</b>	105	234
<b>Price (\$/hd lwg)</b>	\$3.00	\$3.00
<b>Gross Income (\$/ha)</b>	\$315	\$702
<b>Total costs (\$/ha)</b>	\$216	\$340
<b>Gross Margins (\$/ha)</b>	\$99	\$362
<b>Extra Profit from forage sorghum</b>		+\$263

The dryland trial showed improved water use efficiency from **24kg DM/mm rain** for shirohie millet to **57kg DM/mm rain** for forage sorghum.

## Forage sorghum selection

The term forage sorghum covers a range of C4 summer forages including sudan grass, sorghum x sudan crosses, sorghum x sweet sorghum and sweet sorghum x sweet sorghum types. These hybrids can also have crosses involving BMR (brown mid rib) genes improving feed quality. Each of these has specific traits making them better suited to different on farm uses.

The selection guide below is included to help you select the most appropriate option for your situation.

You should also be aware that whilst they are included as forage sorghums, sudangrass is more susceptible to Atrazine damage which is excluded from most herbicide labels. If grass weeds are a problem, then you should use a seed safener such as Concep II®, which can be used on all forage sorghum types. This can then enable the use of either Dual Gold® or Primextra Gold®.



## Forage sorghum selection guide

DECISION CRITERIA	BEST TYPE	PREFERRED OPTION
Focus on rotational grazing, highest quality for milking or liveweight gain	BMR Sudangrass	<b>SF Beamer</b>
Quickest feed to first grazing. Dual purpose grazing or hay cuts	sorghum x sudan	<b>SF Flourish</b>
Higher quality option. Quickest feed to first grazing. Dual purpose grazing or hay cuts	BMR sorghum x sudan	<b>SF Mustang</b>
Deferred grazing or hay production. Ultra-late flowering to maintain quality 1-2 cuts	Photo-Period Sensitive sorghum x sudan	<b>SF Splendour</b>



# SF Beamer

BMR Sudangrass



FEATURES	BENEFITS
Superior forage quality	Increased intake for greater animal performance
Sudangrass x sudangrass	Reduced prussic acid risk
Earlier grazing opportunity	Can be grazed at 500–600mm
Fast recovery	Can be re-grazed faster

Sowing rate	
Dryland	10–15kg/ha
Irrigated	25–30kg/ha

**early flowering**

**Australian release > 2014**

**Stock suitability > Dairy, sheep & beef**

**Focus on high quality**

SF Beamer has finer stems, narrow leaf blades, tillers profusely and re-grows rapidly after harvest compared to forage sorghums.

It can be sown when soil temperatures reach 18°C and are rising. The time to first grazing will depend upon soil temperatures. A stubble of about 100mm is recommended after cutting or grazing to promote vigorous re-growth and profuse tillering of the next crop.

We recommend SF Beamer where the focus is on high quality grazing and fast recovery between grazings.

## Forage EBV's – compared to industry standards\*

VARIETY HEIGHT	YIELD KG DM/HA	NDF			ME			CP		
		0.5M	1.0M	1.5M	0.5M	1.0M	1.5M	0.5M	1.0M	1.5M
<b>sudan grass</b>										
<b>SF Beamer BMR</b>	<b>12,119</b>	<b>41</b>	<b>55</b>	<b>60</b>	<b>12.4</b>	<b>10.4</b>	<b>9.7</b>	<b>25.3</b>	<b>20.4</b>	<b>19.0</b>
Superdan 2	11,577	44	60	63	11.9	9.8	9.2	24.2	19.1	16.2
SSS	11,254	45	60	60	12.0	9.8	9.8	24.8	18.1	18.0
Nudan	10,094	46	65	68	11.9	9.0	8.5	24.2	15.9	15.5
<b>millet</b>										
Siberian	4,228	47	66		11.6	8.8		24.9	15.3	

\* based on data from trial at Murwillumbah 2015/16

\* Quality data from NSW DPI Feed Analysis Service based on different cutting heights



# SF Mustang

BMR forage sorghum

FEATURES	BENEFITS
Mid maturity hybrid sorghum X sudan	Low prussic acid risk
BMR 12 gene	Reduced lignin, for higher feed quality
Fine stemmed and leafy	Improved feed quality
Excellent regrowth & drought tolerance	Outstanding animal performance
Works well as a multi-cut hay or silage	Flexible stand management

Sowing rate	
Dryland	8–12kg/ha
Irrigated	20–25kg/ha

**ultra-late flowering**

**Australian release > 2018**

**Stock suitability > All livestock types > Silage & hay**

**General fit**

SF Mustang is a new high-quality forage sorghum option ideally suited to fast first feed and multiple harvests. It should be grazed from 60–100cm in height to maximise forage quality, but being a BMR type it will have lower lignin and higher quality than conventional forage sorghums of similar mid maturity.

Higher sowing rates will maximise yield and improve quality through production of finer stems. Suited to hay or grazing by sheep, beef or dairy cattle.

## Trial data

BMR sorghum x sudans	C1 19.1.17	C2 13.2.17	C3 16.3.17	Total	Homogeneous groups	
Calibre BMR	3,085	1,489	2,916	7,489	A	
Octane BMR	2,205	2,789	2,353	7,347	A	
<b>SF Mustang BMR</b>	<b>3,121</b>	<b>1,382</b>	<b>2,567</b>	<b>7,069</b>	<b>A</b>	<b>B</b>
Rocket BMR	1,929	2,302	2,694	6,924	A	B
BMR Revolution	2,579	1,578	2,374	6,531	A	B
<i>trial mean</i>	<i>2,271</i>	<i>1,948</i>	<i>2,543</i>	<i>6,762</i>		
<i>CV%</i>	<i>32.50%</i>	<i>26.10%</i>	<i>24.10%</i>	<i>18.10%</i>		
<i>lsd(0.05)</i>	<i>1,069</i>	<i>737</i>	<i>890</i>	<i>1,780</i>		

\*based on data from trial at Shepparton 2016/17. Trial sown and managed by Eurofins Agrisearch.



# SF Flourish

forage sorghum



# SF Splendour

ultra-late PPS forage sorghum

FEATURES	BENEFITS
Hybrid Sorghum X Sudan	Low prussic acid risk
Fine stemmed and leafy	Improved feed quality
Excellent regrowth & drought tolerance	Outstanding animal performance
Works well as a multi-cut hay or hay and silage	Flexible stand management

Sowing rate	
Dryland	8–12kg/ha
Irrigated	20–25kg/ha

**early flowering**

**Australian release > 2015**

**Stock suitability > All livestock types > Silage & hay**

**Fast first feed and multiple harvests**

SF Flourish is an excellent value forage sorghum option ideally suited to fast first feed and multiple harvests. It should be grazed from 60–100cm in height to maximise forage quality, but can be conserved as hay, but with lower feed value. Higher sowing rates will maximise yield and improve quality through production of finer stems, suited to hay or grazing by sheep, beef or dairy cattle. It will need to be fed with adequate nutrition based on a soil test. We recommend sowing with an N/P based starter fertiliser and regular topdressing after grazings with Nitrogen and some Potassium. Being a sorghum by sudan, grass weeds can be controlled with Atrazine without the need for a seed safener. For difficult grass and broadleaf weed problems, you can use a seed safener such as Concep II® to enable the use of Dual Gold® or Primextra Gold®.

**Forage EBV's – compared to industry standards\***

VARIETY HEIGHT	YIELD KG DM/HA	NDF			ME			CP		
		0.5M	1.0M	1.5M	0.5M	1.0M	1.5M	0.5M	1.0M	1.5M
<b>sudan grass</b>										
<b>SF Flourish</b>	<b>10,417</b>	<b>48</b>	<b>61</b>	<b>58</b>	<b>11.4</b>	<b>9.7</b>	<b>9.9</b>	<b>23.2</b>	<b>18.2</b>	<b>16.6</b>
BMR Revolution	10,583	45	57	64	11.2	9.7	9.3	21.8	20.6	15.3
Boost	10,576	47	62	59	11.2	9.6	9.8	20.7	16.5	20.0
Octane BMR	8,497	49	54	64	10.8	10.3	9.1	21.2	18.7	17.5
<b>millet</b>										
Siberian	4,228	47	66		11.6	8.8		24.9	15.3	

\* based on data from trial at Murwillumbah 2015/16  
 \* Quality data from NSW DPI Feed Analysis Service based on different cutting heights

FEATURES	BENEFITS
Hybrid Sorghum X Sudan	Low prussic acid risk
Ultra-late flowering	• Improved feed quality over early varieties • Ideal as stand-over feed for grazing or cutting
Fine stemmed and leafy	Improved feed quality
Good drought tolerance	Efficient water use efficiency
Works well as a multi-cut hay or hay and silage	Flexible stand management

Sowing rate	
Dryland	8–12kg/ha
Irrigated	20–25kg/ha

**ultra-late flowering**

**Australian release > 2016**

**Stock suitability > All livestock types > Silage & hay**

**Ideal as a stand-over feed for grazing**

SF Splendour is an ultra-late Photo Period Sensitive (PPS) hybrid sorghum x sudangrass. It can be grazed or held over as standing feed or hay and will not run to head like the early maturing varieties on the market. The plant will not enter the reproductive stage until there is less than 12 hours and 20 minutes sunlight which takes it out well into autumn. It will need to be fed with adequate nutrition based on a soil test. We recommend sowing with an N/P based starter fertiliser and regular topdressing after grazings with Nitrogen and some Potassium. Being a sorghum by sudan, grass weeds can be controlled with Atrazine without the need for a seed safener. For difficult grass and broadleaf weed problems, you can use a seed safener such as Concep II® to enable the use of Dual Gold® or Primextra Gold®.

## Customer Service and Logistics

### **Shepparton office and warehouse**

104-106 Drummond Rd, Shepparton, VIC 3630  
Phone 03 5832 3800 Fax 03 5821 8999

## Territory Contacts

### **QUEENSLAND & NORTH EAST NSW**

Mike Gout 0418 100 390  
mikegout@seedforce.com

### **NW & CW NSW**

Paul Sippel 0499 700 345  
paulsippel@seedforce.com

### **NORTHCOAST & TABLELANDS NSW**

Troy Richards 0408 086 106  
troyrichards@seedforce.com

### **SW NSW & NE VICTORIA**

Dean Madsen 0459 858 845  
deanmadsen@seedforce.com

### **NORTHERN VICTORIA & TASMANIA**

David Gould 0428 751 503  
davidgould@seedforce.com

### **WESTERN VICTORIA & GIPPSLAND**

Georgie Rees 0459 858 844  
georgierees@seedforce.com

### **SOUTH AUSTRALIA**

Tim Wilmshurst 0467 770 353  
timwilmshurst@seedforce.com

### **WESTERN AUSTRALIA**

Dale Thompson 0491 211 104  
dalethompson@seedforce.com

### **TECHNICAL EXTENSION**

David Leah 0447 565 457  
davidleah@seedforce.com

© copyright Seed Force Pty Ltd 2018.

The recommendations made in this publication are based on information available at the time of publication. Seed Force has provided the information in good faith and will not be liable for any damages suffered as a result of reliance on the information.

\* The man and seed logo are registered trademarks of RAGT Semences, France.

\* The SF stylised logo is a registered trademark of Seed Force Pty Ltd.

