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# GUIDE

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**PGG Wrightson** *Seeds*





Are you in  
need of a  
simple weed  
management  
system?

**The Cleancrop<sup>™</sup>  
Brassica System  
eradicates a range  
of key problem  
weeds in brassicas.**







## REGULAR BRASSICA

Gruener kale crop with a high  
weed burden of wild turnip

## CLEANCROP™

Cleancrop™ Firefly kale with  
Telar® herbicide applied

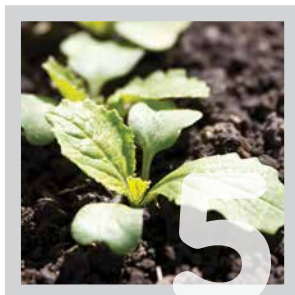


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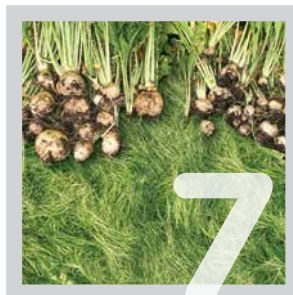
*PGG Wrightson Seeds*



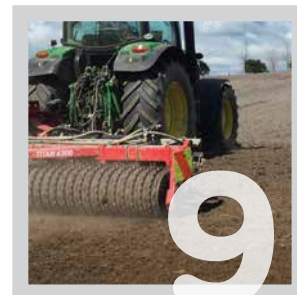
**WHAT IS IT?**



**HOW DOES  
IT WORK?**



**WHY USE IT?**



**SOWING**



**GROWING**



**FEEDING &  
MANAGEMENT**



**CLEANCROP™  
CULTIVARS**





# WHAT IS IT?

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**CONTROL  
WEEDS.  
INCREASE  
YIELD.**

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The **Cleancrop™ Brassica System** is a **CROP AND WEED MANAGEMENT SOLUTION** all in one.



### CLEANCROP™ BRASSICA SEED

Cultivars that have been BRED to be resistant to the sulfonylurea herbicide Telar®

### Telar® HERBICIDE

A broad spectrum herbicide that provides EXCELLENT control of broadleaf weeds from the pre-emerge stage

### WEEDS CONTROLLED:

 Telar® herbicide controls the following 23 weeds.

- |                        |                     |                       |                   |
|------------------------|---------------------|-----------------------|-------------------|
| • Calandrinia          | • Fathen            | • Scentless Chamomile | • Vetch           |
| • Californian Thistle* | • Hawksbeard        | • Scotch Thistle      | • White Clover    |
| • Chickweed            | • Nodding Thistle   | • Shepherd's Purse    | • Wild Turnip*    |
| • Cornbind             | • Rayless Chamomile | • Spurrey (Yarr)      | • Willow Weed     |
| • Dandelions           | • Redroot           | • Stinking Mayweed    | • Yellow Gromwell |
| • Docks                | • Scarlet Pimpernel | • Twin Cress          |                   |

*\*Apply Telar® post-emerge when Cleancrop™ brassicas are at the fourth true leaf stage. Do not apply after the 6-8 leaf stage. Consult your accredited Agent/Retailer to order your second Telar® spray.*

Apply Telar® at  
the pre-emerge stage  
within 48 hours of sowing



# HOW DOES IT WORK?

**PREPARE  
PADDOCK**



**PLANT  
CLEANCROP™**



**SPRAY  
WITH TELAR®**





# DEAL TO YOUR WEEDS BEFORE THEY DEAL TO YOUR CROP

Only **Cleancrop™** combines the power of broad-spectrum herbicide Telar® and **PLANTS BRED TO RESIST IT**. Telar® takes care of 23 hard-to-control weeds at the time of sowing, freeing up moisture and nutrients to give your crop the best chance of maximising performance and delivering superior returns on your seed investment. Telar® cannot be used with conventional brassicas.



The **Cleancrop™** Brassica System (seed + herbicide) package enables you to control your weeds at the time of sowing.

## CLEANCROP™ BENEFITS:



**CONTROL WEEDS**  
within 48 hours of sowing\*



**LOW MOISTURE REQUIRED#**  
to activate Telar® herbicide



**NO SOIL  
INCORPORATION REQUIRED**



**ADAPTABLE TO  
METHOD OF SOWING**

*\*For the weeds listed on page 4 that require Telar® applied as a foliar spray at post-emergence, an application can be made when the crop is at the fourth true leaf stage or later. Do not apply after the 6-8 leaf stage.*

*#Warm, moist conditions following treatment promote the activity of Telar® while cold, dry conditions delay the activity of Telar®.*





TELAR® APPLIED

TELAR® NOT APPLIED

# WHY USE IT?

## A SIMPLE WEED MANAGEMENT SYSTEM

No other forage brassica system combines the power of traditionally bred herbicide resistant plants plus a broad spectrum herbicide to **MAXIMISE CROP PERFORMANCE**.



## SIMPLE PLANNING



## MAXIMISE PERFORMANCE



## ON-GOING BENEFITS



### GIVE YOUR CROP A HEAD START

Weeds are controlled right  
from the start



TELAR®

### ALL IN ONE PACK

Receive the exact amount of  
seed and chemical for the job



### REDUCE COMPETITION for moisture and nutrients



**MANAGE** historically  
difficult to control weeds



### INCREASE PERFORMANCE

Excellent agronomic cultivars



### MAXIMISE YIELD = LOW c/kgDM



### SHORT PLANT BACK

Only 3 month grass and  
clover plant back period



### CLEANER NEW PASTURE PADDOCKS



**SOWING**  
**FOLLOW**  
**THE SOWING**  
**GUIDELINES**  
**TO MAXIMISE**  
**CLEANCROP™**  
**PERFORMANCE.**

**CLEANCROP™ PACKAGES:**

All Cleancrop™ Brassica System cultivars are ordered on a per hectare (ha) basis and include 20 g/ha Telar®.

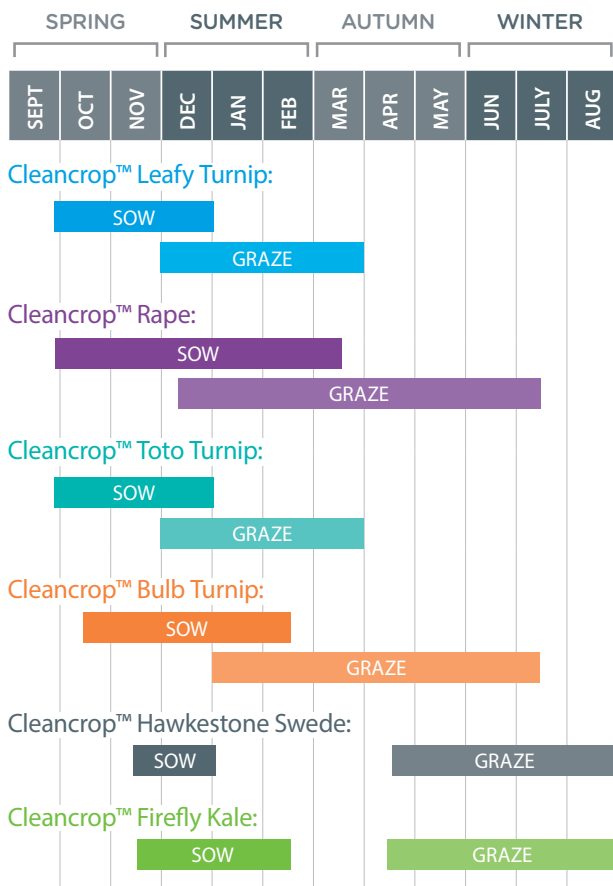
Leafy turnip	4 kg/ha
Forage rape	4 kg/ha
Toto turnip	2 kg/ha
Bulb turnip (summer)	2 kg/ha
Bulb turnip (winter)	1 kg/ha
Hawkestone swede	1 kg/ha
Hawkestone swede (Pelleted)	90,000 seeds/ha
Firefly kale	4 kg/ha

*Note: The Cleancrop™ Brassica System is unique. PGG Wrightson Seeds sell it as a package, i.e. Seed + Chemical. One item cannot be purchased without the other. Agents/ Retailers have to be accredited to sell the Cleancrop™ Brassica System to ensure stewardship is maintained.*



# >> CROP PLANNING

## CULTIVAR SELECTION GUIDE:



## PLANNING:

Brassica crops are often sown into paddocks that need renovating. It is important to take a soil test at least six months prior to sowing so nutrient deficiencies can be corrected prior to crop establishment.

Sow the most suitable brassica for your feed needs, and at a soil temperature of 10°C and rising.

## CROP ROTATION:

Brassicas should not be sown in the same paddock for more than two years in a row. There should be a minimum of five years before brassicas are resown again.

Hawkestone swede should only be used in a first crop situation to prevent dry rot infection. A second crop alternative is Firefly kale.

If there is a high risk of either dry rot or clubroot infection, then in the second year it is recommended to sow the paddock in either pasture or a cereal crop.



*The Cleancrop™ Brassica System should not be used in the crop rotation 24 months prior to planting fodder beet or potatoes.*

## >> GROUND PREPARATION

### CONVENTIONAL SOWING:

Spray the target paddock out with a recommended rate of glyphosate and penetrant.

At least three days following spray out, hard graze to remove existing vegetation prior to cultivation.

Cultivate to prepare a **FINE, FIRM**, and **WEED-FREE** seedbed.

### DIRECT DRILLING:

Best practice is to double spray, with the initial spray out at least 6 weeks prior to sowing.

A second spray with glyphosate occurs prior to drilling and should include an insecticide.

Telar® can be applied with the second spray of glyphosate. Do NOT graze paddock after Telar® has been sprayed.

### FERTILISER:

All brassica crops respond strongly to high rates of nitrogen and phosphate. Fertiliser should be either applied during the final cultivation and worked into the seed zone OR applied down the drill below the seed.

## >> SPRAY & SOW

### SPRAYING & DRILLING:

The Cleancrop™ Brassica System is sold by the hectare and includes 20 grams per hectare (g/ha) of Telar® herbicide plus the appropriate amount of brassica seed for each hectare.

Sow seeds at a depth of 10 mm, or if broadcasting, cover seeds prior to spraying.

Spray Telar® at the pre-emergent stage (i.e. prior to emergence), this should be within 48 hours of sowing.



*After Telar® has been applied, clean-up spray equipment immediately to avoid any subsequent damage to crops. Immediately after spraying with Telar®, thoroughly remove all traces of Telar® from mixing and spraying equipment by using appropriate tank washing solutions as per the manufacturer's instructions.*



*In the event of a crop failure (within three months) do not replant with any crop other than Cleancrop™ brassica, wheat, barley or oats.*



*Take note of grazing withholding periods (WHP) following use of Telar®. The WHP for Cleancrop™ rape and leafy turnip is 28 days after application and 42 days after Telar® application for Cleancrop™ bulb turnip, Toto turnip and Hawkestone swede. The WHP for Firefly kale is 98 days after Telar® application.*



*When mixing Telar®, continuous agitation is required to keep the product in suspension. Use Telar® herbicide spray mixtures within 24 hours of preparation, as product degradation may occur.*



## >> PROTECTION

**Ultrastrike®** brassica seed treatment is applied to all Cleancrop™ Brassica System seed.

It contains a systemic insecticide, two contact fungicides and the trace element molybdenum.

### INSECT PESTS

Springtails, Aphids,  
Argentine Stem  
Weevil & Nysius



### SEEDLING DISEASES

*Pythium, Fusarium,  
Rhizoctonia*



**ULTRA STRIKE® SEED  
TREATMENT HELPS LAY  
THE FOUNDATION FOR  
A HIGH YIELDING CROP**

**Ultrastrike®**  
*brassica*

## >> PREVENTION

An insect prevention programme is required around the time of sowing to enable the best chance of seedling establishment.

### SLUGS

Always apply slug bait in  
direct drill situations



### NYSIUS

Apply an appropriate  
insecticide before or after  
sowing to high risk paddocks



### SPRINGTAIL

Apply an appropriate insecticide  
before or after sowing



### GRASS GRUB

Thorough cultivation in  
spring should reduce  
populations. If required, apply a  
granular insecticide



A close-up photograph of a person's hand holding a large rutabaga root vegetable. The rutabaga has a purple top and a yellow bottom. The hand is wearing a black sleeve with a blue and white checkered pattern. The background is a blurred green field.

# GROWING

## CONTINUE TO MONITOR BRASSICA CROPS AFTER SOWING

Brassica crops respond well to a post-emergence application of nitrogen at about three to five weeks after sowing (before canopy closure has been obtained). Your local accredited Agent/Retailer can provide you with advice on the correct type and rate of fertiliser.



## >> WEEDS:

### CONTROLLED WITH TELAR® POST-EMERGE:

Wild Turnip and Californian Thistle often will germinate later in the season. In very dry seasons, Fathen may also have a second germination. If these weeds appear in your crop, activate the second spray of Telar® by consulting your accredited Agent/Retailer. Apply Telar® at 20 g/ha in this post-emergence application when brassicas are at least at the fourth true leaf stage but before the 6-8 leaf stage.

Best results are obtained when Telar® is applied to young, actively growing weeds (less than 5 cm tall or across).

Warm moist conditions following treatment promote the activity of Telar® while cold, dry conditions delay the activity of Telar®.

Some weeds may not be controlled with Telar®:

**Moderately susceptible:** Cleavers, wireweed and yarrow

**Moderately resistant weeds:** Field pansy and speedwells

**Resistant weeds:** Black nightshade, wild oats and summer grasses

There are multiple herbicide options available for the control of these weeds. Consult your Retailer for herbicide options.



*EC insecticide formulations (Chlorpyrifos, Lorsban or Attack) or fluid fertilisers should NOT be tank mixed with Telar® when applied at the post-emergence stage to Cleancrop™ brassica cultivars due to potential crop damage. Do not mix Telar® herbicide with other products unless directed.*



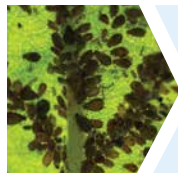
*To help prevent the development of resistant weeds, Telar® Herbicide or any other sulfonylurea herbicide, should not be applied alone (i.e. without an appropriate tank mix herbicide) to the same paddock more than three times within three successive years.*



*Low temperatures, high soil pH, low rainfall and low soil organic matter (SOM) can result in longer residues of Telar®. These factors can result in a plant back period of more than three months. Consult your accredited Agent/Retailer for advice.*



## PESTS & DISEASES: PREVENTION & CONTROL



### APHIDS:

Ultrastrike® brassica seed will provide seedling protection. If identified in the crop, apply an insecticide



### ARGENTINE STEM WEEVIL:

Ultrastrike® brassica seed will provide seedling protection. If identified in the crop, apply an insecticide



### GREASY CUTWORM:

Apply an appropriate insecticide as soon as damage is seen



### LEAF MINER:

Apply an appropriate insecticide when early damage is identified



### DIAMONDBACK MOTH:

Apply an appropriate insecticide when early damage is identified



### WHITE BUTTERFLY:

Apply an appropriate insecticide when early damage is identified

Pest and disease problems can be avoided by good monitoring, prevention and control.

Pests

Diseases

### ALTERNARIA:

Plough cruciferous residue in completely and use long crop rotations. Utilisation of infected leaf tissue can reduce impact of infection



### BLACK ROT:

Be mindful of crop rotation and bury previous crop debris



**CLUBROOT:** Be mindful of crop rotation with brassicas



### DOWNY MILDEW:

Plough cruciferous residue in completely and use long crop rotations. Utilisation of infected leaf tissue can reduce impact of infection



**DRY ROT:** Be mindful of crop rotation and minimise crop residual in second year crops



### WIRESTEM/DAMPING OFF:

Ultrastrike® brassica seed treatment will provide some protection



# FEEDING & MANAGEMENT

## « RECOGNISING PESTS & DISEASES

Pest and disease problems can be avoided by good monitoring, prevention and control.

### 1 DON'T ALLOW STOCK SUDDEN, UNRESTRICTED ACCESS TO BRASSICA CROP

Sudden access to brassica crops can upset the balance of rumen microbes, resulting in animal health challenges such as scouring and rumen acidosis. A gradual transition to a new feed source is required. Start by grazing the crop for no more than one to two hours per day. Ensure plenty of long-stem fibre supplements (baleage, silage, hay and/or straw) are available to stock. During transitioning, increase feed allocation of brassica crops in small 15-20% increments every two days, building up to a maximum allowance over at least 10-14 days. A **full rumen** is required before animals are shifted onto crops.

### 2 AT ALL TIMES, GIVE ANIMALS ACCESS TO FRESH WATER

Although the water content of brassicas is high, it is recommended that animals have access to fresh water at all times as limited water intake causes animal dry matter intake to decline.



# 3

## FEED EXTRA FIBRE PRIOR TO AND WHILE GRAZING BRASSICA CROPS, AND FEED AS PART OF A BALANCED DIET:

Forage crops are highly digestible and do not contain much 'effective fibre'. Offer animals a source of fibre while grazing crops, and ensure the supplementary fibre is good quality.

### Feeding extra 'effective fibre' means:

- More chewing and increased salivation to help maintain rumen pH
- Slower flow of feed through the rumen and gut for a more effective rumen fermentation
- Increased cud chewing to support good digestion, which in turn helps to prevent gorging, facilitates rumen microbes adjustment to the feed and maintains normal rumen function.

### Once feed transition is complete, offer:



**At least 20%** of the diet as good quality fibrous supplement or runoff pasture for non-lactating dairy cattle, beef cattle and sheep\*



**No more than 35%** of the diet as crop for lactating cows, due to risk of brassica milk taint



**Ideally no more than 80%** of the diet as crop for drystock

## CROP MANAGEMENT

### MATURITY DATES



It is important that crops are only grazed once the cultivar has reached its specified maturity date.

### FLOWERING/BOLTING



Flowering or bolting (elongated stem) crops can potentially lead to animal health issues. Contact your veterinarian or Retailer for advice if flowers or bolters are present in your crop prior to grazing.

### DRY MATTER (DM) YIELD ASSESSMENT

Assess the amount of feed on offer (kgDM/ha) to calculate feed allocation and/or stocking rate.

Always assess the DM percentage when calculating crop yield and never use book values – assuming the DM percentage can significantly over-or under-estimate available feed.

## GRAZING MANAGEMENT

### CHANGING BETWEEN CROP SPECIES



When transitioning animals onto different crop species (for example, changing diet from brassica to fodder beet), you must begin the transition process again.

Allow a minimum of 10-14 days to transition animals onto the new crop.

### CROP ALLOCATION



Avoid increasing the crop allocation per animal if you observe poor utilisation of crops and/or animals appear to be losing condition or not gaining weight.

### FEEDING MANAGEMENT

When break feeding, long narrow breaks offer animals more space to graze than square breaks.

This encourages crop utilisation and even grazing of bulb and leaf (turnip and swede), or stem and leaf (rape and kale).

\*Runoff pasture may not provide adequate fibre intake for cattle, therefore it is recommended that a quality fibre supplement is offered.

# CLEANCROP™ CULTIVARS



**FIREFLY  
KALE**



**Days to Grazing:** 150-220



**Sowing Rate:** 4 kg/ha

**HIGH YIELDING** intermediate  
height kale

**HIGH LEAF-TO-STEM RATIO**  
with very good late winter leaf  
percentage

**EXCELLENT CROP  
UTILISATION** due to selection  
for soft stems

**VERY GOOD WINTER  
HARDINESS** and excellent pest  
and disease tolerance



**HAWKESTONE  
SWEDE**



**Days to Grazing:** 170-250



**Sowing Rate:** 1 kg/ha OR  
Pelleted at 90,000 seeds/ha

**HIGH YIELDING** yellow-flesh  
swede with medium maturity

**SIMILAR DRY ROT &  
CLUBROOT TOLERANCE**  
to Aparima Gold

**GOOD LEAF DISEASE  
TOLERANCE**

**PLANT GLUCOSINOLATE\***  
**LEVELS** similar to Aparima  
Gold Swede

\*Three main glucosinolates; progoitrin,  
glucobrassicin and neoglucobrassicin



**CLEANCROP™  
RAPE**



**Days to Grazing:** 90-110



**Sowing Rate:** 4 kg/ha

**HIGH YIELDING**  
multi-graze forage rape with  
very good leaf percentage and  
crop utilisation

**MULTI-PURPOSE  
FORAGE RAPE**

with excellent summer/autumn/  
early winter feed

**GOOD REGROWTH  
POTENTIAL** with excellent  
winter keeping ability



**RECOGNISE THE  
POTENTIAL FOR  
ANIMAL HEALTH  
PROBLEMS**

Risks can often be avoided  
by good crop and grazing  
management.





## CLEANCROP™ TOTO TURNIP



**Days to Grazing:** 55-90



**Sowing Rate:** 2 kg/ha

### HIGH YIELDING

summer bulb turnip

### EXCELLENT UTILISATION

due to tankard bulb shape and  
bulb softness

### EARLY MATURING TURNIP

that can be grazed from 55 days  
after sowing

### SUITABLE FOR SUMMER AND AUTUMN FEED



## CLEANCROP™ BULB TURNIP



**Days to Grazing:** 80-110



**Sowing Rate:** 2 kg/ha  
(Summer) OR 1 kg/ha (Winter)

### HIGH YIELDING

bulb turnip

### SUITABLE FOR SOWING FROM LATE SPRING

through to late summer

### SUITABLE FOR SUMMER/AUTUMN/ WINTER FEED



## CLEANCROP™ LEAFY TURNIP



**Days to Grazing:** 42-70



**Sowing Rate:** 4 kg/ha

### FAST ESTABLISHING

multi-graze Pasja type  
with reduced bolting

### EXCELLENT PLANT PERSISTENCE

after multiple grazings\*

### PROVIDES A FLEXIBLE GRAZING OPTION

for all stock classes  
over summer and autumn

*\*Moisture dependent*



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***Need more feed?***

***Contact your local seed retailer,  
go to [www.pggwrightsonseeds.com](http://www.pggwrightsonseeds.com) or  
Freephone 0800 805 505***



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