cleancrop®
Brassica System

GUIDE

2024

PGG Wrightson Seeds

Are you in need of a **simple weed management system?**

The Cleancrop™ Brassica System eradicates a range of key problem weeds in brassicas.

cleancrop®
Brassica System

REGULAR BRASSICA

Gruner kale crop with a high weed burden of wild turnip

CLEANCROP™

Cleancrop™ Firefly kale with Telar® herbicide applied

CONTENTS

PGG Wrightson Seeds

WHAT IS IT?

CONTROL WEEDS. INCREASE YIELD.

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

cleancrop® Brassica System =

CLEANCROP™ BRASSICA SEED

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

TELAR® HERBICIDE

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

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

WEEDS CONTROLLED: Telar® herbicide controls the following 23 weeds#.

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

**Apply Telar® post-emerge when Cleancrop™ brassicas are at the fourth true leaf stage. 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®. Consult your accredited Agent/Retailer to order your second Telar® spray.

CLEANCROP™ CULTIVARS

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*

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

CLEANCROP™ CULTIVARS

ASPIRING SWEDE

Days to Grazing: 150-220

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

HIGH YIELDING
soft, yellow-fleshed swede with early maturity

IMPROVED DRY ROT & *ALTERNARIA* TOLERANCE

IMPROVED LEAF & BULB YIELD
over Major Plus

PLANT GLUCOSINOLATE* LEVELS
similar to Aparima Gold Swede

**Three main glucosinolates; progoitrin, glucobrassicin and neoglucobrassicin*

HAWKESTONE SWEDE

Days to Grazing: 170-250

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

HIGH YIELDING yellow-fleshed 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*

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

SARGE KALE

Days to Grazing: 150-220

Sowing Rate: 4 kg/ha

HIGH YIELDING short to medium height kale

HIGH LEAF-TO-STEM RATIO and is soft stemmed which leads to improved crop utilisation

VERY GOOD WINTER HARDINESS
and late winter leaf percentage

LARGE PADDLE SHAPED LEAVES
provide exceptional leaf yields

HOW DOES IT WORK?

PREPARE PADDOCK

Quality seedbed preparation is an important part of the Cleancrop™ Brassica System to maximise weed control efficacy. For example, cloddy soil or open drill rows can result in gaps in the Telar® treated area giving weeds an opportunity.

PLANT CLEANCROP™

SPRAY WITH TELAR®

For best results, apply Telar® herbicide to the soil, pre-emergent to the crop. It is important this application occurs within 48 hours either side of sowing, and the crop has not emerged.

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® 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®.

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

GIVE YOUR CROP A HEAD START

Weeds are controlled right from the start

ALL IN ONE PACK

Receive the exact amount of seed and chemical for the job

MAXIMISE PERFORMANCE

REDUCE COMPETITION

for moisture and nutrients

MANAGE historically difficult to control weeds

INCREASE PERFORMANCE

Excellent agronomic cultivars

ON-GOING BENEFITS

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:

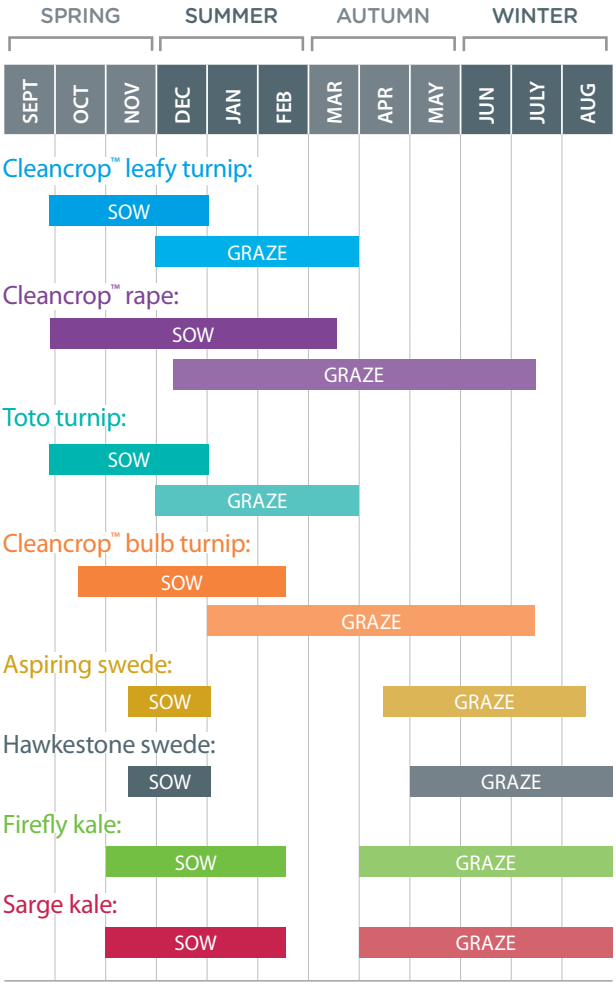
All Cleancrop™ Brassica System cultivars are ordered on a per hectare (ha) basis and include 20 g/ha Telar®.

Cleancrop™ leafy turnip	**4 kg/ha**
Cleancrop™ rape	**4 kg/ha**
Toto turnip	**2 kg/ha**
Cleancrop™ bulb turnip (summer)	**2 kg/ha**
Cleancrop™ bulb turnip (winter)	**1 kg/ha**
Aspiring swede (soft) (Pelleted)	**1 kg/ha 90,000 seeds/ha**
Hawkestone swede (Pelleted)	**1 kg/ha 90,000 seeds/ha**
Firefly kale (intermediate)	**4 kg/ha**
Sarge kale (short)	**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. Planting any earlier than 10°C and rising soil temperatures may results in slow germination of brassica seedlings and poorer weed control efficacy of the Telar® herbicide.

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.

Aspiring and Hawkestone swedes should only be used in a first crop situation to prevent dry rot infection. A second crop alternative is Firefly or Sarge 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, leafy turnip, Sarge kale and Firefly kale is 28 days after application and 42 days after Telar® application for Cleancrop™ bulb turnip, Toto turnip, Hawkestone swede and Aspiring swede.

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

ULTRASTRIKE® PELLETED BRASSICA

Aspiring and Hawkestone swede are also available with Ultrastrike® pelleted brassica seed treatment – a weight build-up seed coating with the addition of phosphate.

Ultrastrike® brassica

PREVENTION

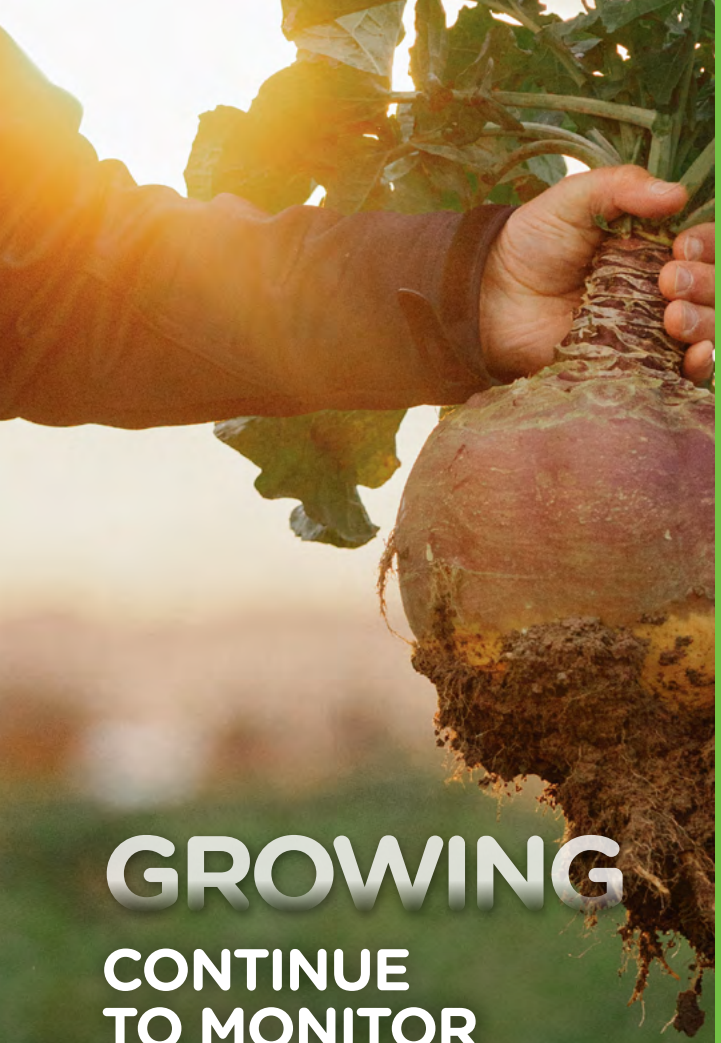
An insect prevention programme is required around the time of sowing to enable the best chance of seedling establishment.

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



GROWING

CONTINUE TO MONITOR BRASSICA CROPS AFTER SOWING

POST EMERGENT WEED CONTROL

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®.

Experience has shown in a few instances when conditions are cold, weeds such as Fathen, Willow weed and Spurrey (Yarr) may be unaffected by the pre-emerge Telar® application. If these weeds appear in your crop, another post-emerge NON-Group 2 herbicide application is recommended. Wild Turnip and Californian Thistle will often germinate later in the season. If these weeds appear in your crop, activate the second spray of Telar® by consulting your accredited Agent/Retailer. Apply Telar at 20g plus a non-ionic surfactant emergence application when brassicas are at least at the fourth true leaf stage but before the 6-8 leaf stage.

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.

IMPORTANT TELAR® INFORMATION

For post emergent applications of Telar® herbicide always add a non-ionic surfactant at the manufacturer's recommendation unless mixing with another product which contains surfactant. DO NOT apply with a crop oil or oil based surfactant adjuvants.

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.

Telar® plus Magister® CS herbicide, Monarch® herbicide and glyphosate are compatible pre-emerge.

Experience so far suggests that Telar® herbicide is compatible with Exirel® Insecticide at the post-emerge stage.

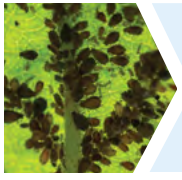
Crop injury can occur when mixed with emulsifiable concentrate (EC) formulated products, foliar fertiliser products, spray oils or oil-based surfactant adjuvants.

PESTS & DISEASES: PREVENTION & CONTROL

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

Pests

Diseases



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

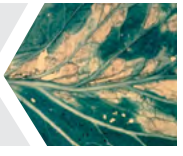
GREASY CUTWORM:
Apply an appropriate insecticide as soon as damage is seen

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

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

« RECOGNISING PESTS & DISEASES

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

FEEDING & MANAGEMENT

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

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

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).

CONTROLLING WILD TURNIP AT KAKAHU ANGUS

RECOGNISE THE POTENTIAL FOR ANIMAL HEALTH PROBLEMS

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

CASE STUDY

WHERE: Kakahu Angus, South Canterbury

FARM TYPE: Sheep, Beef & Dairy

WHO: Jeremy Winchester

Tucked between Fairlie and Geraldine in South Canterbury, Kakahu Angus is a 1,600 ha sheep, beef and dairy operation with 1,000 breeding cows, 430 dairy cows and 2,400 breeding ewes. All stock winter on-farm, so a successful winter crop is vital. But a small patch of wild turnip was spreading further each year, creating real concerns for the farm's brassica cropping programme.

Jeremy Winchester, Ag Manager at Kakahu Angus, heard about the Cleancrop™ Brassica System from his local field rep, and he "pulled the trigger and gave it a whirl."

The Cleancrop™ Brassica System combines the power of broad-spectrum herbicide Telar® and plants bred to resist it. And for Jeremy, the simplicity of the system has been key. "It's really easy to use and gives us more options."

He started using Cleancrop™ Firefly kale in 2021 and was able to effectively control problem weeds within the crop. This has been crucial to the success of the brassica crops and has helped protect the property from potential diseases carried by wild brassica.

Jeremy is continuing to use Cleancrop™ Firefly kale to help clean up paddocks across the farm and he plans on bringing in Cleancrop™ Toto turnip in as a summer crop as well.

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Need more feed?
Contact your local seed retailer,
go to www.pggwrightsonseeds.com or
Freephone 0800 805 505

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linkedin.com/company/pgg-wrightson-seeds

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