switch AG fertilisers

Kelp – Enhanced Through Fermentation

Phenologically specific plant support

From roots to reproduction



Left: *Ascophyllum nodosum*. Right: *Durvillaea potatorum*.

Why a two-part kelp strategy?

Plant priorities change as melons move from establishment into flowering, fruit set and fruit development. The Switch Ag strategy matches a **root-specific kelp** to establishment, then transitions to a **reproduction-specific kelp** as demand shifts above ground.

1 Root establishment

Root initiation, branching, architecture and early access to water and nutrients.

2 Flowering and fruit set

Reproductive transition, pollen support, fruit set and early cell division.

3 Fruit development

Sink strength, stress resilience and continued fruit development.

RhizoKelp

Root-specific establishment formulation

Apply 5 to 10 L/ha at planting | Irrigate into the root zone

A root-focused foundation

RhizoKelp is designed for the establishment phase, when root initiation and architecture have a lasting influence on water capture, nutrient access and the crop's capacity to carry reproductive demand later in the season.

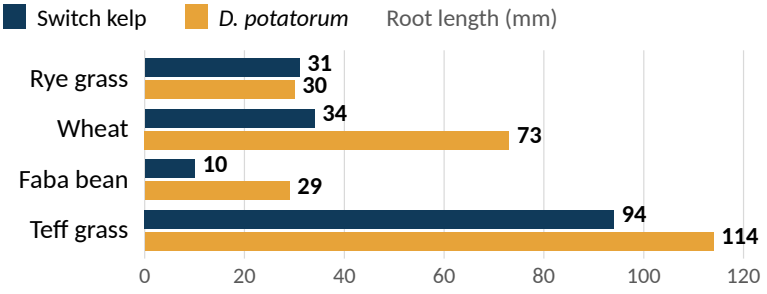
- **Auxin-rich positioning** supports root initiation, branching and elongation.
- Combines Northern Hemisphere *Ascophyllum nodosum* with Southern Ocean *Durvillaea potatorum* (Tasmanian bull kelp).
- Beneficial biology, organic acids and amino-based compounds broaden support beyond kelp hormones alone.

Two kelp species, by design

Northern Hemisphere *Ascophyllum nodosum* has long been associated with quality kelp formulations. The *Durvillaea potatorum* component was added after extensive trial work evaluating both Northern Hemisphere and Southern Ocean kelp species. Each kelp develops its own mechanisms for coping with the cold or rough climatic and oceanic conditions it grows in. Trials have shown this combination leads to better root development, setting the crop up at establishment for successful production.

Trial results for oats and canola are on page 2.

Root-length trial observations



Why include *D. potatorum*?

Longer roots were observed in three of four crops, with the clearest differences in wheat, faba bean and teff grass. These observations support a complementary species blend rather than relying on one kelp source for every crop stage.

RhizoKelp root trials

Four treatments were compared in trials on oats and canola: T1, the *Durvillaea* spp. and *Ascophyllum* combination used in RhizoKelp; T2, *Durvillaea* spp. alone; T3, an alternative kelp; and T4, an untreated control.

> **How roots were assessed.** Root score and root quality index are based on observations of **root complexity**, a combination of branching and elongation.

Trial 1: oats

Treatment	n	Root length (mm)	Root score (1-10)	Root quality index (length x score)
T1 *Durvillaea* spp. + *Ascophyllum*	**16**	**156.3**	**5.69**	**944**
T2 *Durvillaea* spp.	23	146.1	5.04	**801**
T3 Alternative kelp	26	163.8	4.46	**780**
T4 Control	26	159.2	3.85	**649**

Trial 2: canola

Treatment	n	Root length (mm)	Root wet weight (g)	Lateral root score (1-10)	Root quality index (length x score)
T1 *Durvillaea* spp. + *Ascophyllum*	**9**	**168.9**	**10.71**	**6.56**	**1140**
T2 *Durvillaea* spp.	10	133.0	10.71	7.20	**993**
T3 Alternative kelp	11	161.8	7.18	4.73	**775**
T4 Control	10	146.0	8.08	6.10	**919**

Similar results were achieved on other crops.

What the trials show

- T1, the RhizoKelp kelp combination, recorded the **highest root quality index in both trials**: 944 in oats and 1140 in canola.
- In canola, T1 also recorded the longest roots (168.9 mm) and the equal-highest root wet weight (10.71 g).
- In oats, T3 and T4 recorded longer roots than T1 but lower root scores. The difference between treatments showed in root complexity rather than length.



FoliKelp

Reproduction-specific foliar formulation

Apply 1 L/ha every 2 to 3 weeks | Align with foliar nutrition

What is FoliKelp?

FoliKelp is a biologically fermented *Ascophyllum nodosum* formulation designed for low application rates. It starts with a highly concentrated kelp extract, which is then enhanced through an extended biological fermentation process to release more beneficial compounds for plant uptake.

Supporting the reproductive transition

Its cytokinin-rich profile is positioned to support reproductive performance over vegetative growth, from flowering through fruit set and early fruit development. Added biology supports nutrient mineralisation and foliar uptake.



Flowering, fruit set and fruit development.

Switch Ag's Unique Biological Fermentation Process

1

Concentrated kelp foundation

High-solids *Ascophyllum nodosum* selected for rich bioactive content and organic carbon.

2

Carbon and organic substrates

Provide the building blocks and energy source for biological fermentation.

3

Slow biological fermentation

Extended, low-agitation biological fermentation with beneficial microbiology progressively digests and transforms the organic matrix.

4

Extraction of beneficial fractions

Further digestion of the kelp cell structure releases and concentrates natural hormones, polysaccharides, peptides and other bioactives.

5

Stabilised for the crop

The final formulation is balanced for stability and foliar uptake.

Reproductive performance

- Cytokinin-rich kelp supports flowering and pollen health.
- Supports fruit set and sink strength.
- Supports early cell division and organ development.

Stress resilience

- Seaweed polysaccharides and amino acids support resilience.
- Antioxidants help protect cells from stress damage.
- Helps the crop manage temperature or moisture stress.

Ideal for key crop stages

- Pre-flowering to flowering
- Flowering to fruit set
- Fruit development and sizing
- Periods of temperature or moisture stress
- With foliar nutrient applications



Why FoliKelp can be applied at a low rate

FoliKelp and its raw material have been tested for low-rate application. As further support for the 1 L/ha rate, we compared the *Ascophyllum nodosum* raw material that goes into FoliKelp with a commercial *A. nodosum* product marketed for use at less than 1 L/ha.

Nearly twice the solids

- The FoliKelp raw material contains **48% w/v solids**, compared with 25% w/v in the low-rate comparison product.
- Biomarker levels are **similar or higher across every fraction measured**.
- FoliKelp's concentrated biomarker profile supports its positioning within the established low-rate kelp application category.

Raw-material metric	FoliKelp raw material	Low-rate product
Solids (w/v)	**48%**	25%
Total biomarkers	**9-10%**	6-7%
Alginate	**>4%**	>2%
Mannitol	**>1.5%**	>1%
Fucoidan	**>4%**	<1%

Alginate, mannitol and fucoidan are compounds characteristic of brown seaweed and are used as markers of how much kelp material is present. Values compare raw-material analyses only. They are not field results and do not claim equal field performance.

The Switch Ag multi-biostimulant formulation platform

Both RhizoKelp and FoliKelp combine kelp with complementary biostimulants, creating a broader formulation than a stand-alone seaweed extract.

K Kelp fractions

Natural hormone balance, polysaccharides and crop-stage-specific signalling.

O Organic acids

Fulvic and humic fractions support chelation, nutrient complexing and tank integration.

A Amino and antioxidants

Support metabolism, recovery and cellular protection during high demand or stress.

B Beneficial biology

Supports nutrient mineralisation and biological fermentation around the crop.

A companion for foliar nutrition

The multi-biostimulant formulation makes FoliKelp an excellent companion for foliar nutrient applications. Kelp fractions, organic acids, amino compounds and beneficial biology work alongside the nutrients in the tank, with organic acids supporting chelation, nutrient complexing and tank integration.

Proposed melon program and cost comparison

Program	Timing and rate	Cost/ha	Value
RhizoKelp x 1	5 L/ha at planting	**$27.35**	Root establishment
FoliKelp x 3	1 L/ha every 2 to 3 weeks	**$29.55**	Reproductive support

Switch Ag program total: $56.90/ha

Competitor program: $88.00/ha | Saving $31.10/ha (35%)

Prices in AUD, ex GST. Jar test before mixing.