

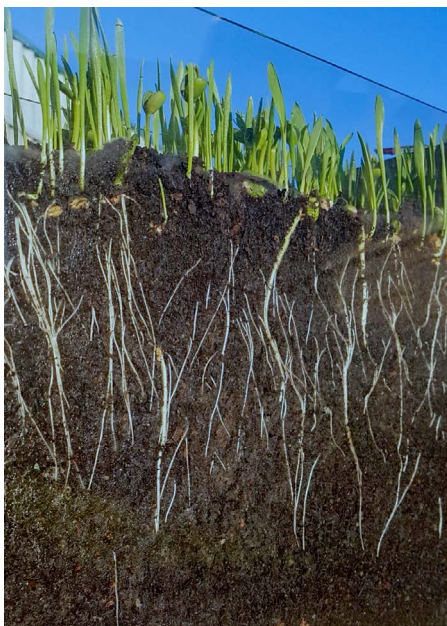


Autumn cover crop trial

February 2021

Key management considerations

- ▶ Cover crops can help protect steep paddocks during times of expected high rainfall
- ▶ Planning for cover crops should include – identifying suitable species, when to plant, how and when to deal with plant residue
- ▶ Cover crops cost approximately one tenth of the value of soil potentially lost due to erosion if no erosion control used – approx. \$140/ha vs approx. \$1,000/ha



Cover crop mix at 16 days post-seeding - seedlings are 3-5 cm but roots are 10-15 cm (image from separate planter box demonstration trial)

A [previous factsheet](#) discussed potential **water management** techniques you can use **after** your cash crop is established. This factsheet focuses on **cover crops**, one of the **soil management** techniques you can use **before** your next cash crop.

Background

The potential for cover crops to provide protection from erosion is multifaceted.

Above ground they reduce raindrop impact (and this increases with increasing plant height). Below ground the roots bind the soil, reducing the potential for erosion, while also creating pathways for more water to soak into the soil, which also decreases run-off.

In this multisite trial in North West Tasmania, seasonal cover crops were used to protect bare fallow autumn and winter soils from erosion.

Trial set up

Treatment	Site - near Ulverstone
Description	5 ha NE aspect 17° slope high rainfall (~900 mm/yr)
Crop rotation progression	Pyrethrum → Cover crop → Potatoes
Paddock preparation	Pyrethrum stubble reduced by slashing and incorporation (speed disc 10-15 cm depth) - early April
Cover crop	Tic beans, peas, lupins and oats sown via spinner then light discing
Cover crop seeding rate	30 kg/ha*

* 50 kg/ha may give a better result

See last page for trial timeline and key observations



Trial site showing 5 m contours

Things to think about when choosing cover crops

Benefits

Soil Health

- ▶ erosion control
- ▶ improved structure
- ▶ improved biology
- ▶ improved infiltration
- ▶ improved nutrient scavenging
- ▶ disease and weed suppression
- ▶ improved nutrient retention
- ▶ improved water holding capacity, etc.

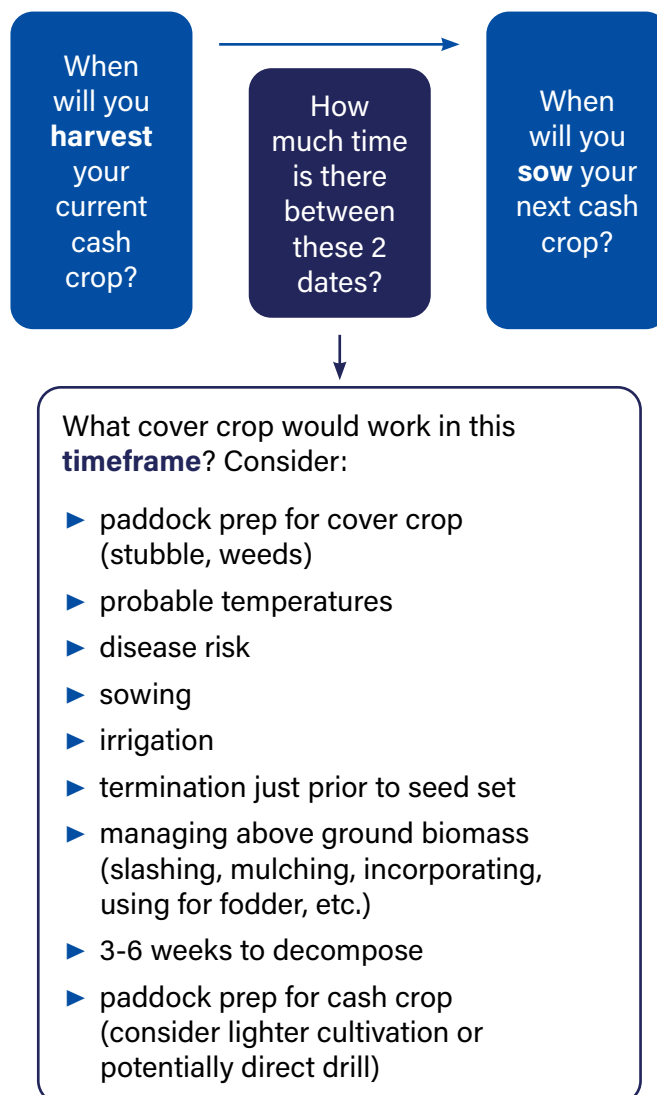
Longer term cost savings

- ▶ fertiliser
- ▶ chemicals
- ▶ fuel
- ▶ irrigation requirements, etc.

Potential issues

- ▶ working soils if wet
- ▶ cover crop could host disease/pests
- ▶ time pressures between crops
- ▶ availability of resources to terminate cover crop
- ▶ cost of some cover crop mixes

Timing



Getting started with cover crops

Choose an easy option - go easy on yourself and improve your chances of achieving what you set out to do, gradually gain confidence in each cover within your system

- ▶ Choose one paddock that has the most potential to improve with a cover crop
- ▶ Use a green manure mix
- ▶ Choose a cover crop that will easily fit within your window of opportunity
 - ▶ Order it in advance – to ensure availability and widest range of options
 - ▶ **Choose a cover crop to improve one thing** (not everything), e.g. compaction
- ▶ Choose a cover crop that won't act as a disease host for your cash crop
- ▶ Start with a smaller, less complex mix
 - ▶ A good basic mix – cereal + brassica + legume + a herb
 - ▶ Ask for advice on sowing rates – avoid outcompeting of varieties
- ▶ Aim for good establishment to assist with weed suppression
- ▶ Check the cover crop regularly
 - ▶ Deal with any issues early
 - ▶ Is it achieving what you wanted to achieve?
- ▶ **Use chemical termination prior to seed set**
 - ▶ Ensure effective prior soil preparation (amendments, nutrients) as herbicide uptake is much improved if plants are functioning well
 - ▶ Rules of thumb
 - ▶ Terminate at knee height*
 - ▶ Lupins – stalk should not have hardened
 - ▶ Take herbicide rotation into account
- ▶ Keep notes/photos to refer back to

*if biomass is greater than this, mulching may be required to ensure breakdown within 3-6 weeks

Cover crop trial results

Only one site is detailed in this factsheet, but all three sites had similar results.

Erosion observations

No erosion was evident at any point in the trial, even though there were significant rainfall events totalling in excess of 250 mm in the three months from April to June (see rainfall graph on final page).

Soil compaction results

Late June and August show less soil compaction compared to early April (see soil compaction graph on final page), particularly within the expected cover crop root zone (down to 15–20 cm). **Note that even when the plants are only 3-5 cm high, root length can already be 10-15 cm** (see root growth photo, page 1).

Slashing and discing stubble may also have contributed to the reduced resistance.

Soil moisture

Despite several large rainfall events, the **soil moisture remained stable over the cover cropping period**. Some of the excess water would have been effectively pulled from the soil to the atmosphere via the healthy plants' evapotranspiration. This would not have occurred in a fallow field.



Further resources

[Cover crop poster](#) - shows each cover crop's benefits, growth tolerances, sowing depths, etc., available on Soil Wealth website

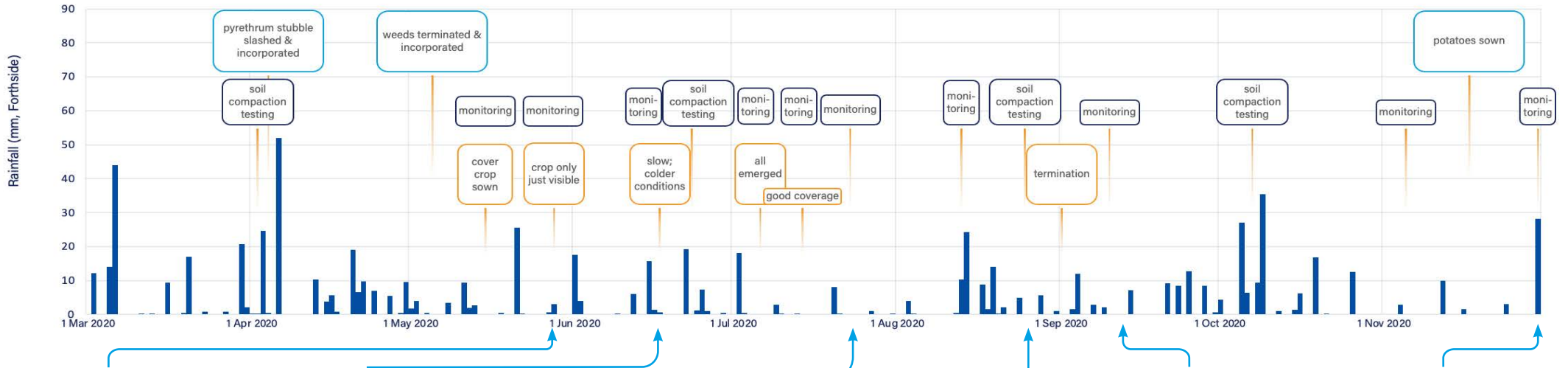
Check the [CCNRM portal](#) for more on protecting productive soils

The [Soil Wealth and Integrated Crop Protection](#) website also has a lot of useful information, including the [previous factsheet](#) on hillslope erosion

Acknowledgements

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Overview of timeline (horizontal axis) and rainfall (vertical axis)
pyrethrum → cover crop → potatoes



27 May



16 June



23 July



10 September



30 November



25 August

