



# A guide to catch and cover crops



An oats catch crop.

## How can planting a catch or cover crop benefit your farm and the environment?

Cover or catch cropping refers to growing crops on the same field in the same year, one crop being sown after the harvest of the other.

It's often used after the main crop or grass has been grazed or machinery has exposed the soil.

It's a proven and cost effective way to reduce not only nitrogen leaching, but also bacteria and soil loss to waterways, controlling of invasive weeds and improvements for farm production.

A cover crop is used mainly to increase soil fertility and reduce erosion. A large variety of plant species can be used to form a

cover crop. Species are selected to grow in the local climatic conditions while achieving specific requirements like repairing soil damage, provide a specific nutrient or reduce erosion from heavy seasonal rains. Planting multiple species greatly increases cover crop benefits as each plant does a different job to tackle various problems or provide benefits.

A catch crop is used to specifically absorb (catch) nitrogen which would otherwise be lost to drainage or surface runoff. A number of plant species can do this, with some used to store nitrogen until it's time to sow the next cash crop, or harvested for balage or silage for future stock feed.

The colder climate in Southland limits plant species that are suitable, but oats, Italian rye grass and Triticale grow well. Oats are especially effective and can produce up to 12 tonnes of dry matter per hectare, worth up to \$2100 per hectare, and Lincoln University research measuring up to 40% reduction in nitrate leaching.

## ► Advantages of cover and catch crops for farmers

### Soil erosion

Exposed soils are vulnerable to erosion and damage from the elements especially after heavy rain. A cover crop will protect the soil surface from heavy rain and the roots will bind soil together holding it in-place and improving water infiltration, reducing surface runoff.

### Soil fertility

Cover and catch crops store energy from the sun and absorb nutrients from the soil and water. This energy is then returned to the soil when the crop is cultivated or cycled through grazing animals. Natural soil fertilisers are easily absorbed by plants, feed soil biodiversity for increased soil health and provide animals with a greater range of beneficial micro-nutrients.

### Soil health

Bare soil damaged by the elements can rapidly lose nutrients, carbon and organic matter. Cover and catch crops stop this and return these three vital ingredients to the soil. Plant roots absorb carbon, and increase water and air filtration. Healthy soil produces plants that are nutrient dense, which improves animal health and protects the environment.

## Pest weed and disease management

Plants have formed many defenses against pest weeds and diseases. Some reduce the dominance of certain weeds; others deter or kill pests while many are resilient to diseases or prevent them establishing. A tailored mix of plant species to tackle these problems can result in higher production, using considerably less chemicals and machines, without damaging the soil or effecting water quality.

## Water quantity and quality

Plants have a significant influence on water quantity and quality. Plants slow down and filter surface runoff and plant roots improve water access into the soils and groundwater systems. These processes reduce the effects of droughts and floods, and dictate flows in streams and springs, replenishing groundwater. This further protects water quality and reduces erosion.

## Natures services for free

Cover and catch crops help to retain or attract different species of birds and insects on your farm that provide free services like pest and disease control. Birds eat huge numbers of insects keeping them from becoming dominant and impacting grass or crop production. Fungi and bacteria in the soil reduce the risk of disease outbreaks. Insects and worms breakdown organic matter into fertiliser and increase soil health for better nitrogen uptake reducing the need to add chemical fertilisers.



Oats from a catch crop have been turned into balage for future stock feed.

## More information

- Read about Lincoln Agritech's catch crop research: [www.lincolnagritech.co.nz/capabilities/capabilities-and-projects/catch-crops](http://www.lincolnagritech.co.nz/capabilities/capabilities-and-projects/catch-crops)
- Read about carbon, planting and soils: [www.amazingcarbon.com](http://www.amazingcarbon.com)
- Read about the regenerative farming network: [www.quorumsense.org.nz](http://www.quorumsense.org.nz)

## Other useful links

- DairyNZ – [www.dairynz.co.nz](http://www.dairynz.co.nz)
- Beef + Lamb NZ – [www.beeflambnz.com](http://www.beeflambnz.com)
- Foundation for Arable Research - [www.far.org.nz](http://www.far.org.nz)

## Further assistance

For advice and designs to suit your specific needs, call us to arrange a free visit by Environment Southland's land sustainability team on 0800 76 88 45.