

Number 9
November
2003

Using Green Manure Crops

Main points:

- improve soil health;
- choose the green manure wisely;
- provides many benefits to following vegetable crops;
- needs to be managed just like any other crop.

What is a Green Manure Crop?

A green manure is a crop that is planted as part of your crop rotation system. It is grown to be incorporated into the soil, not to be harvested. There are many different types of green manure crops: legumes, broadleaf and grasses. They all provide a combination of benefits. Why not consider planting a mixture of crops.



A green manure crop of vetch and sorghum ready for slashing.

Why should I use a green manure?

Organic matter

Green manure crops are an excellent way to incorporate organic matter into your soil.

- Organic matter in soil provides food for soil organisms. They break down the organic matter into humus and release nutrients.
- Humus is vital for soil health and structure, through enhancing its water and nutrient holding capacity.
- Organic matter helps to sustain the soil organisms including many beneficial organisms such as predatory nematodes, fungi, bacteria and mites.

Nutrient recycling

Fallow paddocks lose residual nutrients through leaching out of the soil profile. Green manure crops take up these nutrients as they grow and then release them as they decompose, ready to be used by the vegetable crop.

\$\$\$ "Free" Nitrogen (N)

Bacteria that live on the roots of legume crops capture N from the air and convert it into N that the plant can use. When legumes decompose that N is then available for the following vegetable crop.

Weed Control

Green manure crops:

- cover bare ground; and
- compete with weeds for light, nutrients and water.

Pest and Disease Control

This attribute is very dependant on the crop you choose to plant as your green manure.

- Green manures can break the pest and disease cycle by ensuring there is no host for the pest or disease to live on.
- The flowers of some green manure crops provide nectar for beneficial insects.
- Some green manure crops release natural chemicals into the soil which act as bio-fumigants against soil-borne diseases and nematodes.

ALL CROPS

Managing green manure crops

- Like all crops, green manures need good management to maximise the benefits to your soil.
- Ensure you have a well prepared seedbed, and use the optimum planting depth and density.
- Early weed control is important to ensure good crop establishment.
- Choose a green manure that is suitable for your soil type, climate and season.
- Irrigate and fertilise the crop when needed.
- Slash or mulch the crop prior to incorporating it into the soil.
- Incorporate the green manure crop into the top 15cm of soil, as this will be where it is of most value to following crops.



A cowpea/ Japanese millet mix being slashed prior to cultivation.

There are a number of disadvantages to green manures and although they are usually easily outweighed by the advantages you should consider them.

- They require management inputs but will not provide you with a direct cash return.
- They need to be incorporated at the right time. If left too long they become tough and dry and have little N in them.
- If left to flower and then set seed they may become a weed in your following crops.



Cowpea one week after sowing in November at Mildura.



This sorghum has been left to go to flower. It needs to be slashed now.

Some things to consider

There are many green manure crops to choose from. Which one is right for you? The enclosed tables give you a list of popular green manure crops and some of their main characteristics. When choosing the correct one for your situation consider:

- season and climate;
- soil type;
- cost of seed;
- water requirements;
- length of time from planting to incorporation; and
- what your main objective for planting a green manure is? E.g. bio-fumigation, bulk organic matter, weed competition, etc.

This Matters-of-Facts is a summary of Agriculture Note AG1084 "Organic Farming: Green manures for vegetable cropping and Agriculture Note AG 1122 Organic Farming: "Which green manure should I grow? These Agnotes can be accessed on the web at <http://www.dpi.vic.gov.au/notes>

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Vegetable Matters-of-Facts is published as part of DPI's VegCheque extension program.

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ISSN: 1445-5676