



Vegetable *-Matters-of-* Facts

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POTATO

Using Green Manure Crops for Potatoes

Main Points

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



A green manure crop of vetch and sorghum ready for slashing

\$\$\$ "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 potato 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.

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, rather than 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, they can be used as part of a pasture program.

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 helps to sustain the soil organisms including many beneficial organisms such as predatory nematodes, fungi, bacteria and mites.
- Soil organisms break down the organic matter into humus and release nutrients.
- Humus is vital for soil health and structure, because it enhances soil's water and nutrient holding capacity.

Nutrient recycling

Fallow paddocks lose residual nutrients when water leaches through 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 your potato crop.

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 (see the enclosed list).
- 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 20 cm of soil, as this will be where it is of most value to following crops.
- Plant the green manure in the season preceding your potato crop.



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



Cowpea one week after sowing in November at Mildura.

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 although some can be used as pasture.
- They must be incorporated at the right time ie, while still green. If left too long they become tough and dry and in the short term will actually tie up and reduce available nitrogen
- If left to flower and then set seed they may become a weed in your following crops.



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

Useful Websites for more information:

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?"

<http://www.dpi.vic.gov.au/notes>
and type "green manure" search bar

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Some things to consider

There are many green manure crops to choose from. Which one is right for you? The tables in the Agriculture Note, AG 1122, provide 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? Eg. bio-fumigation, bulk organic matter, weed competition, etc.

For more information please contact your local VegCheque officer.

Neville Fernando	Gippsland	5152 0600
Sally-Ann Henderson	Northern Vic	5051 4500
Bruce Fry	South West Vic	5233 5510
Slobodan Vujovic	Melbourne	9210 9222

For more information please contact

David Madge
Research Scientist
DPI Mildura 50 514500

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Editor: Rob Dimsey, 03 5152 0600

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