

A winter green manure mix for gardeners

Background

Green manures are plants grown to improve the soil. They are often also known as 'cover crops' or 'living mulches'. Winter green manures are usually sown in early autumn, grown over winter then incorporated into the soil in spring. They protect the soil structure from the action of heavy rain, which can result in crusting and cracking when it dries out in hot weather. They also prevent nutrients from being leached out by rainfall and reduce weed growth over winter.

Many green manures in gardening catalogues were originally designed to be incorporated using agricultural machinery such as a rotavator, so gardeners can find them difficult to use. The aim of these trials is to design an over winter green manure mix that establishes well but is also easy to incorporate the following spring. This will also make it easier to use them in no dig gardening.



Green manure mix in 2022

This trial is a follow-up from a similar experiment carried out by Garden Organic in 2022 where we compared our gardeners mix against a standard grazing rye and vetch mix as a control. Repeating trials provides useful information as the weather can vary considerably between growing seasons. We learnt the following from the 2022 trial:

1. Having a mixture provides benefits as the crimson clover in the gardeners mix started to grow back in late winter filling in the gaps where the phacelia was killed off by a sudden frost after a warm spell in early winter.
2. The gardeners mix was easier to incorporate, although it did not provide such good ground cover for the latter half of the winter as the standard rye and vetch mix.

Aims of this experiment

To design a green manure mix that is suitable for over-winter use in a garden setting. We will compare a standard rye and vetch mix with a 'Gardeners' mix' that contains a mixture of 5 species. Over 150 people are taking part in locations around the UK, so that we can see how it performs under different conditions.

Included in this pack:

Seeds, instructions, recording sheets, and picture guide for identification.

Standard mix:

- Vetch (*Vicia faba*) – sprawling vigorous low-growing nitrogen-fixing legume, producing large quantity of green material
- Grazing rye (*Secale cereale*) upright growing cereal, producing a large quantity of green material

Gardeners mix

- Vetch (*Vicia sativa*) – sprawling vigorous low-growing nitrogen-fixing legume, producing large quantity of green material
- Forage pea (*Pisum sativum*) – tall growing, sprawling nitrogen-fixing legume produce a large quantity of green material. Able to germinate at cooler temperatures
- Phacelia (*Phacelia tanacetifolia*) – lower growing sprawling providing good ground cover.
- Flax (*Linum usitatissimum*) – tall growing producing good quantity of green material
- Crimson clover (*Trifolium incarnatum*) – moderately tall nitrogen fixing legume producing good quantity of green material

You will also need:

Two 1 x 1 m² plots next to each other over the period September - April.

Instructions

Sowing time:

Sowing date: Start of September

Preparation and sowing

1. Label one plot 'Vetch and Rye' and other 'Gardeners mix'
2. Remove weeds, clods and large stones and rake the surface so that it has a fine crumbly surface.
3. Lightly water the surface if it is dry
4. Evenly distribute the seed mix on the soil surface and rake the seed in to ensure it has a light covering of soil.
5. Firm the soil down by pressing it down with the back of a rake or the back of a trowel. This is important to ensure that the seed has good contact with moist soil.
6. Water again thoroughly, using a watering can and rose.
7. Inspect every few days and water if it dries out, until the mixture has germinated.

Weeding

Please remove the most vigorous and invasive weeds at the start of the trial to ensure that the plot does not become overrun. Any subsequent weeding should be done straight after you have assessed ground cover. This will allow a visual assessment of build- up of weeds each month.

October		November etc.	
Assess ground cover then weed plot	Allow weeds to build up over month	Assess ground cover then weed plot	Allow weeds to build up over month

Assessing ground cover

Estimate the percentage ground cover of green manure mix, bare ground and weeds in each plot close to the first day of each month. A guide to assessing ground cover is included in the datasheets.

Assessing the species present – November and April

Do this once in November to assess how well each species has established, and once in April to see how well each species survived the winter. Use the key scoring provided in the datasheets and use the photos provided at the end to help you identify the species present.

Incorporating the green manure

At the end of April, incorporate the green manure, either by cutting it down and digging it in, or if you practice no dig, cut it down, chop it up and cover it with a layer of compost at least 3 cm thick.

Monthly timeline from September to April



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Please note that it is not necessary to provide your name and address on the recording sheet.

Many thanks for your support and for taking part in this experiment.

By far the easiest way to send the data is to enter it online:

<https://www.gardenorganic.org.uk/members-experiments>

Please wait till you have finished the experiment before entering the data, as our system only stores completed entries.

or

you can return the record sheets to us by **30 April 2024** at the following address:

Members' Experiment Coordinator,
Garden Organic,
Ryton on Dunsmore,
Coventry
CV8 3LG.

Electronic versions of these instructions are available in the Members' Experiment section of our website:
www.gardenorganic.org.uk/members-experiments.

We welcome good quality photos. The best ones may be published in our magazine and on social media. Please send photos to experiments@gardenorganic.org.uk. Unfortunately, we are unable to use hard copy prints.

This page has been left blank to make it easier to use the guide to estimating ground cover.

Data recording

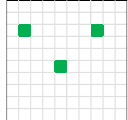
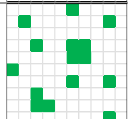
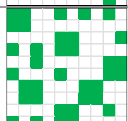
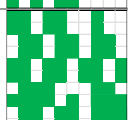
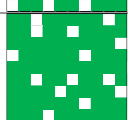
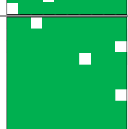
1. What is your postcode?

2. What is your soil type? (tick all that apply)				
Very sandy <input type="checkbox"/>	Quite sandy <input type="checkbox"/>	Silty <input type="checkbox"/>	Mix of sand, silt and clay <input type="checkbox"/>	
Some clay <input type="checkbox"/>	Heavy clay <input type="checkbox"/>	Peaty <input type="checkbox"/>	Chalky <input type="checkbox"/>	

3. Sowing date of green manure mixes

Estimate the ground cover of green manure, weeds and bare soil at the beginning of each month.

The key below can be used to help with assessments.

Range	Description	Typical appearance
0 – 5%	One or 2 plants present, very little there	
5 – 25%	Covering less than a quarter of the ground, not that much there	
25 – 50%	Covering up to half of the ground	
50 – 75%	Covering more than half of the ground but still some gaps	
75 – 95%	Covering most of the ground, only a few small gaps	
95 – 100%	Almost complete cover, gaps are very small	

4. Ground cover of plants at start of October (see guide to estimating ground cover)		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

5. Ground cover of plants at start of November		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

6. What species had established in November? (see the picture guide at the end to help identify small plants)										
1 = absent 2 = one or two plants present. 3 = up to 20% ground cover 4 = 20 – 50% ground cover 5 = more than 50% ground cover										
Date Assessed:										
Tick Score (1 – 5) for each species	Vetch and Rye					Gardeners' Mix				
	1	2	3	4	5	1	2	3	4	5
Vetch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Rye	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Vetch						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phacelia						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forage pea						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flax						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crimson Clover						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Ground cover of plants at start of December		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

8. Ground cover of plants at start of January		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

9. Ground cover of plants at start of February		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

10. Ground cover of plants at start of March		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

11. Ground cover of plants at start of April		
Date assessed:		
	Vetch and Rye	Gardeners' mix
Green manure cover (%)		
Weed cover (%)		
Bare soil (%)		

12. What species were still present in April? (see the picture guide to help)										
(see the picture guide at the end to help)										
1 = absent										
2 = one or two plants present.										
3 = up to 20% ground cover										
4 = 20 - 50% ground cover										
5 = more than 50% ground cover										
Date Assessed:										
Tick Score (1 - 5) for each species	Vetch and Rye					Gardeners' Mix				
	1	2	3	4	5	1	2	3	4	5
Vetch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Rye	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Vetch						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phacelia						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forage pea						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flax						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Crimson Clover						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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 Please answer the following questions about this members experiment



Please tick which of the boxes you think applied to your experience of taking part in this members experiment.					
	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
I enjoyed taking part in this experiment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I learnt something new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I felt I was contributing to something useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am likely to take part again	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other comments					
Any suggestions for future Members experiments					

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Green manure picture guide – the pictures on the left show the young plants growing within a mixture, so other plants may be present in the background.

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Vetch
Vicia sativa



Grazing Rye
Secale cereale



Phacelia
Phacelia tanacetefolia



Forage pea
Pisum sativum



Linseed / Flax
Linum usitatissimum



Crimson clover
Trifolium incarnatum

