

## **Green Manures**

This term refers to the practice of planting cover crops to maintain or increase the productive capacity of the topsoil.

Green manures can be used to increase the organic content of soil, increase its nitrogen content and the amount of other nutrients and trace elements, and improve the looseness and ease of cultivation of the soil. They also protect it from the dust-bowl effects of summer and the leaching out of soluble nutrients by winter rains. In addition, green manures prevent the disintegration of the crumb structure of the topsoil. Green manures can be valuable as a source of compost material and food for the kitchen.

Some of the most common green manure crops are winter rye, Austrian field pea, hairy vetch and buckwheat, and there are a number of edible green crops that can be grown to enrich the soil. Seeds for all these are normally available in bulk from feed stores or large garden centers.

## **Winter Rye**

One of the most useful characteristics of winter rye is that if for reasons of laziness, distractions or absence you didn't get the fall cleanup done until November, there is still time to sow the winter rye. It can be sown any time up to first frost.

Winter rye is a great producer of root mass, and thus of organic material which remains in the ground. It also acts as a weed suppressant and protects the soil from winter rain damage. If your soil has little organic matter or has been deprived of nutrients for years, it is a good idea to dig in animal manure or compost before sowing.

Before sowing the rye, prepare the bed by removing stones and using a rake to break up clumps of soil. Scatter the seeds by hand so that seeds are roughly two inches (5 cm) apart. Rake lightly to cover most of the seeds and keep the bed moist until germination.

If you have a problem with birds eating seed in your garden, try sowing in rows six or eight inches (15 or 20 cm) apart and covering all the seed. If you have a serious bird problem -- like thirty California quail choosing your newly sown bed as a fast-food outlet while dust-bathing -- one option is to temporarily cover the bed with wire netting. This method also eliminates cat excavations.

Depending on when you dig or till the rye in, it can produce substantial leaf growth. I prefer to dig it in before the tops grow over 10 inches (25 cm) high. The time for this depends on the soil temperature during winter. We usually turn it under in late February or early March from an October sowing. Because we have raised beds and do not use a mechanical tiller, we dig it in with a shovel. Ideally, each spadeful should be inverted so that the leaves do not show above the ground. If leaves are left showing they will have to be pulled or hoed to prevent regrowth. Two or three passes with the tiller should result in turning all the grass under.

If the leaves have grown so tall that digging them under proves too difficult, cut the top growth for compost and turn the stubble under. The bed can be resown or

planted two or three weeks after the rye is dug under. I have not used rye in the summer, but it is said to be excellent for suppressing weeds and for bringing poor land back into cultivation.

### **Hairy Vetch and Austrian Field Pea**

Hairy vetch and Austrian field pea are legumes and therefore help to fix nitrogen in the soil. Hairy vetch dies during the winter and the Austrian field pea is very easy to dig under in the spring. They have little root mass and are a good choice if your soil is already high in organic material. Using them reduces the amount of nitrogen that needs to be applied in the spring, but they should be sown in early September, about nine weeks before the first frost.

### **Buckwheat**

Buckwheat is an excellent summer green manure. It is deep-rooted, which brings up nutrients from the subsoil. It is drought-tolerant after the seedlings are established, but it has little in the way of root mass. Spring or early summer sowings of buckwheat should be dug or tilled under, or the tops composted, before seeds develop. Buckwheat winter-kills at the first frost and should be sown before the first week in September in our area. Late-summer sowings of buckwheat are sometimes combined with hairy vetch and Austrian field pea to provide continuous soil protection through the winter.

### **Edible Greens**

There are a number of winter green manures that appear to work well and also provide greens for the kitchen. Spring sowings of red Siberian kale, red Japanese mustard, mizuna, land cress and arugula, if allowed to flower, distribute their seeds to germinate in September or October. The hardy seedlings from these accidental sowings can survive several winters, and make edible ground covers.

They do not develop the extensive root mass of winter rye, but they are easy to pull out in the spring. Another edible green, corn salad (mache), has some potential as a winter green manure but needs to be sown before the end of August. The seeds of these edible ground covers are not normally available in bulk, unlike those of winter rye, buckwheat, Austrian field pea and hairy vetch. Thus, anything more than a small planting may be dependent on the gardener collecting his or her own seeds. The edible green manures do not have the capacity of winter rye for easy germination and growth in the cold soil of mid-October or later here in the Pacific Northwest.