

Organic Long Term Green Manures

Sweet Clover NON ORGANIC

It is not surprising that sweet clover has so many uses as a green manure. It is though as a longer term green manure that it excels. Being biennial, it can be sown in the spring or summer and then over wintered before providing a huge crop in the second year. The plant becomes dormant in the winter and then grows very strongly from crowns in the spring. It will grow to over 2 metres in the second year and can be mulched two or three times through the year with the objective of adding organic matter. Care should be taken to ensure cutting height is around 6-8 inches high for rapid recovery.

The plant has a long, strong tap root for soil structure improvement. The roots penetrate many feet and can penetrate plough pans. Sweet clover will add up to 250 kg N/ha to the soil and there is a noticeable difference to the tilth once the crop is incorporated. It is important not to let the crop go to seed as the seed will remain viable in the soil for many years and could reappear as a volunteer.

Once established a strong crop of sweet clover is extremely competitive against weeds. There is also evidence that sweet clover is good at accumulating insoluble soil phosphorous.

Prior to sowing the seed should be inoculated to effectively start nodulation. Inoculum costs £8.00 per sachet with each sachet treating 25 kgs of seed. Sow at 6 kg per acre (15 kg/ha).

£5.80 per kg

Fertility Builder

One-Two Year Mixture

Ref. MIXFBORG 65% ORGANIC

This mixture of red and white clovers with perennial ryegrass will improve soil fertility and structure. To realise its full potential it should be grown for at least one full year prior to incorporation. Whilst it might be tempting to use red clover on its own, using a combination of N fixers and lifters will result in more organic matter production. This mixture also offers more weed competition and removes the risk of a single species failure. White clover is included for its ability to improve soil structure.

2.65 kg certified MILVUS or GLOBAL red clover

0.50 kg certified CRUSADER white clover

5.85 kg certified TIVOLI ORGANIC per.ryegrass

9.00 kg per acre £45.50 (22.5 kg/ha £113.75)

Humus Builder

Soil Structure Improver

Two-Four Year Mixture

Ref. MIXHBORG 65% ORGANIC

Utilising very strong tap root species for massive improvements to soil structure and humus build up. Cocksfoot and chicory are included to 'beef up' root production. The mixture should be sown in the spring or early autumn by early September. The mixture is a simplified form of the Clifton Park type that was used to improve soils over 100 years ago. The picture below shows the roots of cocksfoot (left) and chicory.

2.70 kg certified OLDENWALDER ORGANIC red clover

0.50 kg certified PUNA chicory

4.80 kg certified PRAIRIAL cocksfoot

8.00 kg per acre £44.45 (20 kg/ha £111.13)

Deep Roots - Top Soil

For the past fifty years or so our concentration has been focused on what develops above ground rather than what goes on below the surface. Effort spent improving topsoil and subsoil correlation with deep rooting varieties of plants and herbs will improve all soils ranging from light and brashy land to the heaviest clay.

Plant roots and plant root aftermath that penetrates to a great depth vastly increases the natural plumbing of the land. This allows both water and air to move deeper into the ground, reducing surface saturation and speeding drying time. It also allows the surface soil temperature to increase at a quicker rate and therefore faster recovery and establishment of crops is made possible. Creating a soil profile with an increased water holding capacity can not only help to reduce run off and lesson the effect of flooding but it can also provide a valuable reserve of moisture in drier times.

Tap Roots - Deep Soil

Tap roots allow a passage for air to reach deep into the subsoil increasing the lung capacity of the earth. As the water table rises and falls throughout the year, by virtue of atmospheric pressure, the ground expels and inhales fresh air. This freedom of air movement through the soil is of paramount importance to leguminous plants. Nitrogen is absorbed through the roots of the legume into the nodules where rhizobium bacteria convert it into soluble plant food. Constriction of aeration can greatly impede the growth of legumes and reduce the production of soluble nitrogen. This lung action also supplies oxygen to the micro-organisms that break the organic matter down into humus, sustaining the conversion of dead plant and animal matter into available plant food.

Hardpan and compaction can be caused by machinery or it can form naturally at any depth. By far the easiest, cheapest and most natural way to break up and control the development of this troublesome condition is to include the strongest rooting species of plant in the rotation. Some herbs, legumes and grasses have root structure very capable of this task. For example chicory, the ability of its roots to penetrate even the thickest of hardpan is well documented.

There can be many minerals and nutrients locked in the subsoil that are beyond the reach of shallower rooting plants. It is possible to extract this valuable resource by exploiting deep rooting herbs in a ley. Many herbs absorb minerals and nutrients from a great depth. These are transferred to the surface and are made available once incorporated during a rotation. This action can be of benefit to both animal and soil health and should be more widely utilised.

Long Term Fertility Builder

There are some situations where land can be improved over a longer period of time. Set-aside and longer fallows provide the opportunities. Already arable farmers have situations where continuous arable cropping does not pay and are now sowing these longer term green manures as an investment for future use. This especially applies on lighter soils and land exhausted by continuous arable cropping. The single farm payment scheme will encourage more farmers to look at this option.

Long term fertility builders are the ultimate green manures providing significant and long lasting benefits. Grasses and deep rooting legumes grown over a one to three year period can add massive amounts of organic matter and leave the structure of the soil in excellent condition. They also build up very high levels of nitrogen which will be used by subsequent first wheat and root crops. Therefore, substantially reducing the need for artificial fertiliser.