

GREEN MANURING

Green Manuring can bring many advantages to the farmer by adding organic matter to the soil, increasing biological activity, improving soil structure, reducing erosion, increasing the supply of nutrients available to plants (particularly by adding nitrogen to the system by fixation), reducing leaching and weed suppression.

| Crop | Drilling Rate kg/ha | Broadcast Rate kg/ha | Sowing Dates | Incorporation Period | Root Type/Depth | Soil type | Useful information and growing tips |
|--|---------------------|----------------------|-----------------------|----------------------------|------------------------------------|--|---|
| Short Term Crops Spring/Summer Sowing & Summer/Autumn Incorporation | | | | | | | |
| White Mustard | 12 | 17 | Spring - Early Autumn | 8 weeks after sowing | Fibrous root system | All types, best on light, sandy soils | Fast growing and good weed suppressor. Has biofumigation properties but not to same extent as brown mustard. Produces large quantities of biomass. Excellent scavenger of nitrogen. Requires fine seedbed. Susceptible to club root. Plough in before flowering to prevent self-seeding. |
| Brown Mustard | 5 | 7.5 | Spring - Autumn | Autumn - Spring | Taproot | All types, prefers moist ground | As white mustard, but contains high levels of glucosinolate which create biofumigation properties to reduce wireworm infestation. To maximise this benefit, crop must be finely chopped at flowering and thoroughly incorporated into moist soil. Brown mustard is winter hardy so is excellent for reducing soil erosion, water run-off and fertiliser leaching when grown after maize, potatoes & sugar beet. |
| Phacelia | 7.5 | 10 | Spring - Summer | 10 - 12 weeks after sowing | Shallow, fibrous | Most soil types, will tolerate dry conditions | Quick to establish and a good weed suppressor. Flowers loved by bees and butterflies. The crop must be incorporated into the soil before setting seed or it may reappear in subsequent crops as a weed. Said to release many minerals into soil as it decomposes, especially P, Ca and Mg. |
| Buckwheat | 50 | 70 | Spring - Summer | Summer - Autumn | Shallow, but with good penetration | Tolerates poor, but not wet soils | Fast growing and quick to mature, not winter hardy. Dislikes wet, heavy or compacted soil. Do not allow to set seed before incorporating into soil. Attractive to beneficial insects especially hoverflies. Good scavenger of phosphate. |
| Crimson Clover | 12.5 | 15 | Spring | Summer - Autumn | Taproot with fibrous branch roots | Prefers loam, will tolerate poor soils as long as alkaline and free draining | Very attractive to insects. Excellent weed suppressor. Biomass degrades quickly into soil. Will over-winter in Southern England for autumn sowing/spring incorporation. Shade tolerant. |
| Linseed | 50 | 60 | Spring - Summer | Autumn - Winter | Taproot with fibrous branch roots | Most types | Easy to establish with thin stems, attractive blue flowers and a thin tap root with fine branches off it. Not frost hardy, but does stand through the Winter. |
| Camelina / Gold of Pleasure | 9 | 12 | Spring - Autumn | Autumn - Spring | Tap and branch roots | Most types | Fast to establish and mature, can cope with poorer soils. Good resistance to pest & disease incidence and an excellent nectar source for bees. Medium biomass that allows other species room to grow. |
| Fodder Radish | 10 | 20 | Spring - Autumn | Autumn - Spring | Deep rooting taproot | Most types | Good early vigour that gives quick soil coverage, with a large biomass and a large taproot. Excellent Nitrogen scavenger. |
| Daikon Radish | 8 | 10 | Spring - Autumn | Autumn - Spring | Deep penetrating taproot | Most types | Fast establishing, big biomass, long large white tubers. Excellent for breaking up compacted soil with its aggressive taproot. An excellent nitrogen scavenger. |
| Egyptian/ Berseem Clover | 10 | 22 | Spring - Early Summer | Later Summer - Autumn | Taproot with fibrous root network | Needs deep fertile soils (uncompetitive) | Annual clover. Grows aggressively throughout the summer and autumn. Likes deep fertile soils with plenty of moisture. Produces large amounts of biomass along with fixing large quantities of nitrogen. A good cover crop to put between two cereal crops. |
| Black Oats) | 50 | 75 | Later Summer - Autumn | Winter - Early Spring | Fibrous root system | Grow in most soil types and conditions | Grows well under most conditions. Early vigour, quickly producing lots of biomass due to the plant rapidly tillering. Can flower early. The fast establishment helps to suppress weeds. Good at disrupting disease cycles. Not frost hardy. |
| Over Winter Crops Autumn Sowing & Spring Incorporation | | | | | | | |
| Forage Winter Rye | 90 | 150 | Autumn | Spring | Extensive, fibrous root system | Grows well on light, sandy, freedraining soils | Produces large amounts of green material. Excellent nitrogen scavenger and for the prevention of nitrate leaching during winter months. Do not allow to run to seed as this will 'lock-up' available nitrogen. Very hardy. |
| Forage Rape | 6.5 | 10 | Spring - Autumn | Autumn - Spring | Deeply penetrating taproot | Most types, able to tolerate poor soil & exposed sites | Fast growing. Good alternative to mustard if using high glucosinolate varieties, as decomposition can release chemicals which produce a biofumigation effect if incorporated within 24 hours of cutting. Where club root is a problem, make sure a resistant variety is used. |
| Vetches | 60 | 90 | Spring - Autumn | Autumn - Spring | Taproot | Prefers loams and clay. Will not thrive in wet or water-logged conditions | Good weed suppressor. Ensure a winter hardy variety is used. Due to its large seed size, will establish later than most other legumes. Requires fine, firm seedbed. |
| Longer Term Crops | | | | | | | |
| Lucerne Pre-inoculated | 20 | 25 | Spring - Early Autumn | Autumn - Spring | Very deep taproot | Light/chalky/free-draining | Seed must be inoculated with rhizobium bacteria. Prefers dry growing conditions. Uncompetitive particularly in early stage of development so grow as pure stand or with non-aggressive companion grasses. |
| White Clover | 5 | 7.5 | Spring - Early Autumn | Autumn - Spring | Creeping stolons. Shallow rooting | Wide range. Tolerates dry conditions | Continued defoliation stimulates root growth and nitrogen fixation. Smaller leaved varieties are more persistent than larger leaved. Good weed suppressor. Shallow sow into fine, firm seedbed. |
| Red Clover | 12.5 | 15 | Spring - Early Autumn | Autumn - Spring | Large, strong taproot | Wide range, avoid poorly drained, acid soils | Aggressive plant, does not release N until crop is ploughed in. Shorter term than white clover. Good for improving and aerating soil structure & useful weed suppressor. Ensure fine, firm seedbed. |
| Yellow Blossom Clover | 5 | 7.5 | Spring | Summer - Autumn | Long taproot | Prefers poor soil and dry conditions. Dislikes wet, heavy ground | Biennial. Quick to establish and grows vigorously. Improves soil structure. Plough in before flowering and before stems become woody. Attractive to bees and other insects if allowed to flower. |

