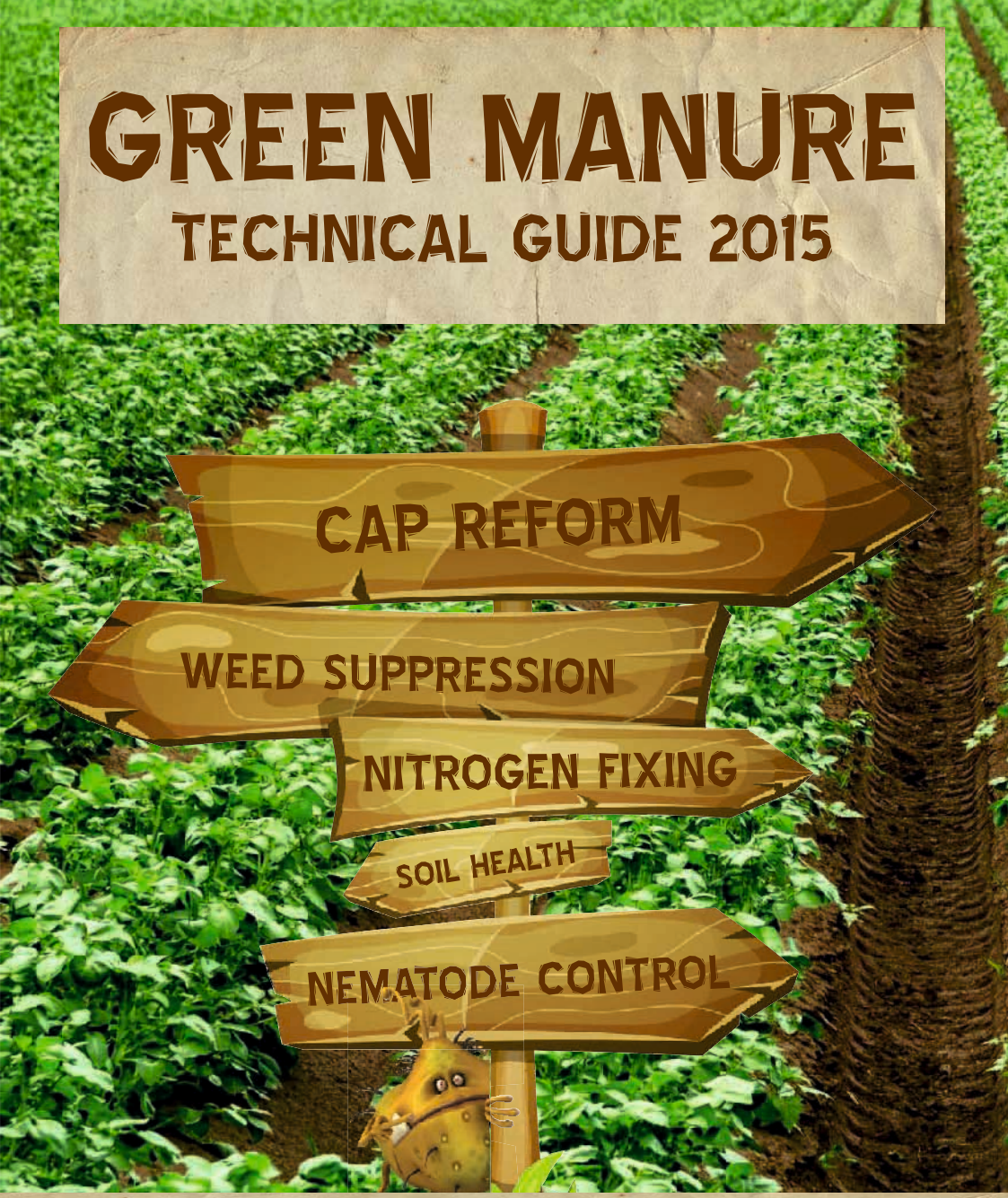
GREEN MANURE

TECHNICAL GUIDE 2015



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Welcome to our **Green Manure Guide.**

We can supply small packets to pallet loads—all on a next day basis, delivered to you or directly to your customer.

If you have any further queries on our products, however small, simply pick up the phone and call us.

LETS SOLVE SOIL PROBLEMS,
CUSTOMER PROBLEMS
AND
THEREFORE YOUR PROBLEMS!

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This guide is designed to provide a broad understanding of the main elements relating to the CAP reform and basic payment scheme which came into operation on 1st January 2015.

It also aims to provide a working knowledge of the range of crops and species that are used in greening, green manuring and catch crops and how these catch crops are beneficial to farmers when used in their arable rotations.

All Things Rural have been involved in green manuring and greening for nearly 30 years. Before the recent change in legislation, sowing of these crops was solely on a 'voluntary' basis meaning volumes have remained relatively small. Europe adopted the concept with greater enthusiasm resulting in a much larger seed market.

We all have a lot to learn regarding this subject and I am sure sowings in 2014 and 2015 will enable us to greater understand the different crops, their preferences, uses and benefits.

In the meantime we have compiled this technical guide taking the best data and varieties from across Europe. We are unique in that we hold all the species listed in stock at Red Hill supplied in any quantity straight or mixed!

Basic Payment Scheme - 'Greening'

Each farm business needs to understand what the requirements are for their business each year.

'Greening' comprises of three parts:

- Maintenance of Permanent Pasture
- Crop Diversification
- Ecological Focus Areas

Organic Farmers will automatically receive the greening payments.

Three Rules of 'Greening'

- Permanent Grassland - Maintenance of permanent pasture will be measured at national level, consequently it is thought that most farmers will not have to do anything differently.

This is a two part rule:

- If the percentage of permanent grassland in England falls by more than 5% (compared to the area of agricultural land) then those farmers who have ploughed it may have to re-instate it.
- Farms that have areas of permanent grassland covered by the wild birds / habitats directive (NATURA 2000) cannot plough the land.

Crop Diversification

If 10 or more hectares of arable land is being farmed, then the following rules need to be followed.

- 10 to 30ha of arable land, two different crops need to be grown. (The largest being not more than 75% of the arable land).
- More than 30ha of arable land, at least three different crops need to be grown. (The largest being not more than 75% of the arable land and the two largest together must not exceed 95% of arable land area).
- Crop types are classed by genus, i.e. Spring and Winter crops are counted as separate crops e.g. Winter Barley and Spring Barley count as separate crops.
- Temporary grassland and fallow count as separate crops (provided the fallow is uncropped between 1st May and 30th June).
- Undersowing—Only the main crop can be counted as a crop.
- A seed mixture can be counted as a crop, but not if grown off fallow or temporary grassland.
- Crops growing in distinct rows can be counted as separate crops, provided the crop covers a minimum of 25% of the field area.

Ecological Focus Area's

- More than 15ha of arable land will need an EFA (unless qualified for an exemption).
- At least 5% of total arable land will be made up by an EFA.
- Five option's for EFA's
  - ⇒ Buffer Strips
  - ⇒ Nitrogen Fixing Crops
  - ⇒ Hedges
  - ⇒ Fallow Land
  - ⇒ Catch and Cover Crops

Each of the above options have a different weighting to convert the chosen option to a hectare equivalent.

Buffer Strips

- Must be parallel to a water course or be on a slope leading to a water course.
- Minimum width 1 metre.
- No production allowed on buffer strips, but can be mown or grazed.
- Wild bird seed and nectar rich mixtures can be sown.

GREENING RULES

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Nitrogen Fixing Crops

- Minimum area 0.01ha.
- No input restrictions but must be in ground between 1st May and 30th June.
- This option includes leguminous crops (peas/beans) or pasture legumes (lucerne/red clover). If grown as a single species or a mixture of all leguminous species.

Hedges

- Minimum length 20 meters.
- Can include gaps (e.g. gateways) but must not be longer than 20m.
- Hedges should be between two parcels of land at your disposal, if not you can only claim half points if you farm one side only.

Fallow

- No crops to be sown during fallow period, with the exception of wild bird mixtures and nectar mixes. Grass can be sown as long as it is not used for agricultural production during the fallow period, E.g. when sown as part of an agri-environment scheme.

Fallow (continued)

- Wild bird and nectar rich mixtures can be sown during fallow period. However must be an unharvestable mix of at least two crops that support wildlife and pollinators (normally a balanced mixture of small seed bearing crops).
- Land under temporary grassland can be used as fallow, but cannot be re-seeded with grass during the fallow period.
- There is no time restriction on the number of years land is classed as fallow and/or EFA.
- Herbicides and cultivation can be used to control weeds, but must comply with cross compliance.
- Fallow land must not be used for storage (e.g. bales, machinery)

Catch and Cover Crops

- Crops must be a mixture of at least two different types. They must include one cereal and one non cereal.
- Must quickly establish groundcover, use any available soil nutrients and cannot be grazed.

GREENING RULES

ALL SPECIES LISTED, READY IN STOCK FOR IMMEDIATE DISPACTH!

Catch and Cover Crops (continued)

- Species that can be included in the mixture:
  - ⇒ Vetch
  - ⇒ Lucerne
  - ⇒ Phacelia
  - ⇒ Mustard
  - ⇒ Rye
  - ⇒ Barley
  - ⇒ Oats
- Cannot use species that are usually grazed and grazing must be avoided after crop destroyed.
- Sowing dates and usage:

  ⇒ Cover Crops - Must be established by 1st October and retained until at least January 15th of following year.

  ⇒ Catch Crops - Must be established by 31st August and retained until 1st October of same year.

There are a number of reasons why we use green manure and intercrops. The primary reasons are to improve structure and fertility of soil.

Green crops are generally used in rotations between two cash crops for the following uses;

- Nitrogen fixing
- Nutrient conservation
- Soil health
- Soil structure
- Soil water retention
- Humus accumulation
- Nematode control
- Erosion protection— Wind and water
- Ground water and flooding protection
- Forage production
- Weed suppression
- Enhanced biodiversity

HOW DO THEY WORK

⇒ Biomass above-ground
(green manuring, humus,
nitrate uptake)

⇒ Soil cover
(erosion, water, soil structure,
weed suppression)

⇒ Root system
(humus, nitrate uptake,
N-fixing, soil structure)

⇒ Deep root system
(breaking soil compaction,
nematode reduction)

NUTRITION UPTAKE (KG/HA) OF DIFFERENT CATCH CROP SPECIES IN RELATION TO DM YIELD

	Nutrition uptake Kg/ha					
Catch Crop	Dm-yield Dt/ha	N	P2O5	K2O	MgO	CaO
Fodder Radish	50	160	65	290	23	0
Rape	40	115	45	125	17	150
Yellow Mustard	30	100	35	90	20	110
Sunflower	40	120	45	160	18	125
Pea/Vetch Mixture	40	120	45	180	25	175
Annual/Ryegrass	40	130	35	100	20	80

Source: (Lutke-Entrup 2001)

Green manures with a thick foliage above ground provide a protective canopy protecting the soil from heavy downpours and strong winds that can cause nutrients to be washed away.

The roots will help hold the soil together and prevent erosion and important nutrients being lost through leaching.

Deep rooting green manures can draw up sub surface minerals so when incorporated back in they are released back into the soil for subsequent crops to utilise.

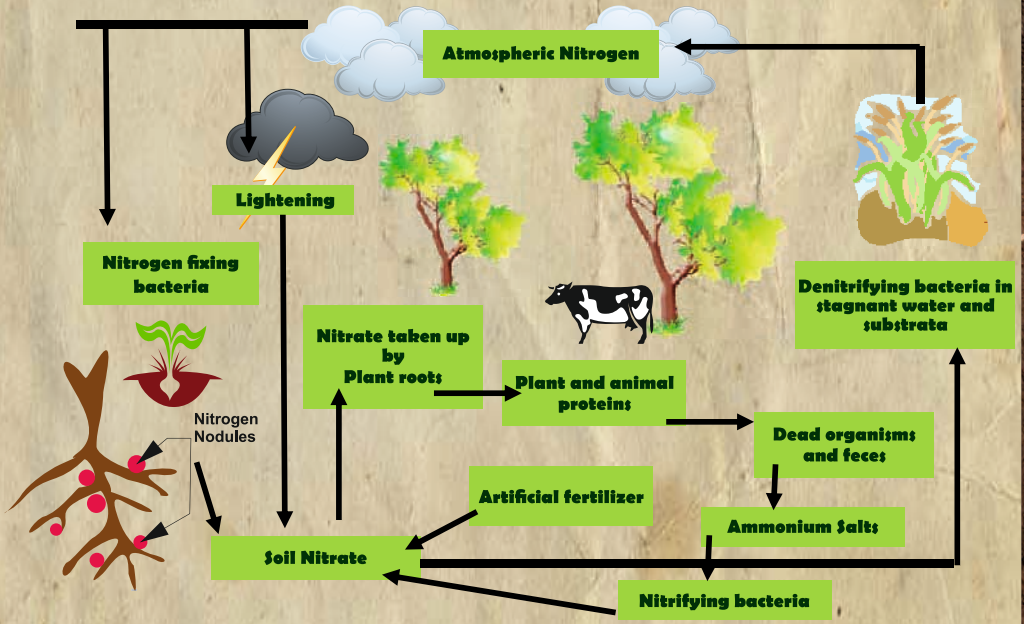
Plant growth and health may be poor due to a deficiency of one or more of the following minerals:

- Nitrate ions are needed for growth. Deficiency symptoms include poor growth and yellowing leaves.
- Potassium ions are needed for photosynthesis. Deficiency symptoms include poor root growth and discoloured leaves.
- Magnesium ions are needed for photosynthesis. Deficiency symptoms are yellowing leaves.

NITROGEN CYCLE

Nitrogen is vital for crop growth and without it most will fail. There is a constant supply of Nitrogen but most is in gas form and the majority of plants cannot use nitrogen in gas form.

Certain green manure crops are Nitrogen fixing plants. They gather Nitrogen from the air and store it in their roots. They do this with the help of a bacteria called Rhizobium. The Rhizobium bacteria infects the plant and uses the plant to gather Nitrogen from the air. The bacteria converts the Nitrogen gas and stores it in the root of the plant forming a Nitrogen nodule.



NITROGEN LIFTING

Nitrogen lifting crops include Italian ryegrass, westerwolds and forage rye. These crops lift Nitrogen from the soil and hold it, so when incorporated back into the soil they slowly release the Nitrogen for the subsequent crops to utilise.

For farmers who are growing Nitrogen hungry crops (oil seed rape) sowing an intercrop mixture of a Nitrogen fixing legume (red clover/vetch) and a Nitrogen lifting crop (Italian ryegrass/forage rye) will be very beneficial.

Forage Rye lifts Nitrogen from the soil, holds it so when incorporated back in releases it for the next crop to utilise.

WHY DO WE USE GREEN MANURE AND INTERCROPS?

Green crops are ploughed back in to improve the soil. They improve the soil health and structure in a number of ways;

- ⇒ Quick to establish and cover the soil, green crops will protect the soil from the heavy rain which causes compaction.
- ⇒ Deep tap roots break up compacted soils making it easier for subsequent crops to establish roots and allows water and air to penetrate.
- ⇒ Deep rooting green crops reach and take up sub soil nutrients. When the green crop is incorporated and decomposes the nutrients are released back into the upper soil levels for subsequent crop to utilise.
- ⇒ Green crops are used on bare soils to mop up nitrates that will otherwise be washed away by winter rain. Forage rye or Italian ryegrass are excellent for this purpose!
- ⇒ Green manures will roughen the surface soil which will decrease the wind speed minimising wind erosion.
- ⇒ When green crops are incorporated into the soil or left as mulch to decompose they add a large amount of organic matter increasing the amount of humus (thoroughly decomposed organic matter). This greatly improves the texture of the soil to allow aeration, water infiltration and retention.

WHY DO WE USE GREEN MANURE AND INTERCROPS?

SOIL HEALTH

Do you have a field where compaction is a problem? We can help!

⇒ 1 % humus = approx.
+ 20Kg N/acre per year
Soil structure (stability)

⇒ 1 % humus = approx.
15 % higher aggregate
Water storage capacity

⇒ 1 % humus = approx.
10-15 % higher water storage

⇒ CO2 Carbon storage
(climatic protection)
Approx. 40-100Kg
C/acre per annum

A 1% humus addition to the soil will produce 20Kg per acre of Nitrogen!

NEMATODE CONTROL

Soil is teeming with these microscopic sized living creatures. There are beneficial nematodes that feed on plant pests and slugs and there are pest nematodes that feed on roots.

Direct feeding by pest nematodes, causes distinctive swellings on the roots called galls. This effects the crops water and nutrient conducting capabilities. Visible symptoms above ground will be yellowing leaves and wilting in heat even when the crop has received adequate water.

The severity of damage depends on species and population. Nematode reproduction is fast so the population in the soil can rapidly increase.

Green manures can play a significant role in controlling nematodes and other pests. Radishes grown in infected soils release root exudates which trigger the hatching of nematode eggs but the larvae that emerge either die or cannot develop into reproductive females. Mustards contain glucosinolates chemical agents and when incorporated, the cells are broken down releasing the glucosinolates which combined with water and a naturally occurring enzyme produces a fumigant with a deadly effect on soil borne pathagens, weeds and nematodes. Both effective natural ways to protect soil as well as preventing chemical run off into our waterways. Also once incorporated these green manures will add organic matter resulting in better yields.

Galls and nodules (formed by fixing N) look similar but galls cannot be rubbed off where as nodules can!

WEED SUPPRESSION

Certain green manures are excellent at suppressing weeds. Fast growing crops with dense foliage smother weeds and starve them of light.

Sowing legumes into established cereal crops will help to suppress weeds.

Other green manures will suppress weeds by allelopathy. When the green manure is incorporated a toxin is released and absorbed by the weeds.

Lots of species will suppress weeds including Mustard, Yellow Trefoil, Forage Rye and many more!

BENEFITS OF GREEN MANURES

Long term green manure leys are used in many organic rotations. Livestock farmers can graze them and if there is no stock on the farm they can be cut for silage. When cut during the summer period the cuttings can be left on the surface as a mulch. Pure clover leys will boost the level of Nitrogen in the soil or if the farmer wants to improve the levels of organic matter a grass and clover ley will produce a mass of thick foliage above ground.

Some green manures can be sown in the autumn to be incorporated the following spring. These crops will protect the soil from the elements over winter and will also prevent leaching of Nitrogen and other vital nutrients.

Undersowing into a cereal crop can help with weed suppression. Care should be taken to avoid the green crop competing with the main crop.

Some green manures provide shelter and if left to flower can attract beneficial insects that are less attracted to cash crops. They can also draw predatory insects away from the cash crop.

LIST OF CROPS

DO YOU NEED HELP PUTTING MIXTURES TOGETHER?

Phacelia (*Phacelia tanacetifolia*)

White Mustard (*Sinapis alba*)

Mustard Type 2—Nematode Resistant

Ethiopian Mustard (*Brassica carinata*)

Brown Mustard (*Brassica juncea*)

Bitter Blue Lupin (*Lupinus angustifolius*)

Winter Vetch (*Vicia villosa*)

Vetch (*Vicia sativa*)

Fodder Pea (*Pisum sativum*)

Egyptian Clover (*Trifolium alexandrinum*)

Serradella (*Ornithopus compressus*)

Buckwheat (*Fagopyrum esculentum*)

Tillage Radish (*Deep rooted*)

Fodder Radish (*Raphanus sativus*)

Fodder Radish Type 1—Nematode Resistant

Fodder Radish Type 2—Nematode Resistant

Black Oats (*Avena strigosa*)

Westerwolds (*Lolium mul. westerwoldicum*)

Lucerne (*Medicago sativa*)

Persian Clover (*Trifolium resupinatum)*

Crimson Clover (*Trifolium incarnatum)*

Niger Seed (*Guizotia abyssinica*)

Forage Rye (*Secale cereale)*

Hybrid Sudangrass

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GREEN CROPS

Phacelia (*Phacelia tanacetifolia)*

- Sow 5Kg per acre

A crop mainly used for green manuring. Phacelia is especially useful on sugar beet growing farms as it is nematode neutral and can therefore break a nematode breeding cycle. It is not winter hardy and is ideally sown in the spring or summer to break down over the winter period leaving fertile ground for spring crops.

White Mustard (*Sinapis alba*)

- Sow 6-8Kg per acre

Cruciferous plant effectively used as a break crop to improve soil structure and fertility. Mustard is fast establishing and drought tolerant. In rotations with beets, a nematode resistant variety is preferable.

GREEN CROPS

Blue Lupins (*Lupinus angustifolius)*

- Sow 25Kg per acre

Have a high bittern content and are only useful for green manuring. The deep rooting system of these legumes can destroy soil compaction and unearth minerals.

Winter Vetch (*Vicia villosa*)

- Sow 5Kg per acre

A winter hardy annual legume. It's Nitrogen fixing capabilities are superior to peas and equal to red clover.

Common Vetch (*Vicia sativa)*

- Sow 20-30Kg per acre

As a legume, it will produce Nitrogen in the root nodules. The tendrils can grow up to 1 meter and roots penetrate the soil up to 80cm.

GREEN CROPS

Fodder Pea *(Pisum sativum)*

- Sow 20-30Kg per acre

Like all legumes it can fix nitrogen and also high volumes of green matter.

Egyptian Clover

(*Trifolium alexandrinum)*

- Sow 8Kg per acre

It is not winter hardy and is killed by early frosts. This clover is useful in nearly all crop rotation and is a non host plant for beet cyst nematodes.

GREEN CROPS

Serradella (*Ornithopus compressus*)

Sow 5Kg per acre
A clover plant for light sandy soils. It can fix air borne nitrogen and transform it into a plant available form of Nitrogen.

Buckwheat (*Fagopyrum esculentum*)

Sow 30Kg per acre
A pseudo-cereal (non-grass). It is fast to emerge and has a dense foliage which smothers weeds. Not winter hardy. When incorporated into the soil it decomposes rapidly, improving the soil structure.

GREEN CROPS

Tillage Radish (*Raphanus sativus)*

- Sow 4Kg per acre

Rapid germination and growth, forming thick and deep rooting radishes. The deep roots destroy soil compaction. It holds and releases vital nutrients and represses nematodes. Tillage radish will also decay rapidly.

Fodder or Oil Radish (*Raphanus sativus)*

- Sow 8Kg per acre

Fodder or Oil Radish is a non tuberous type of radish. It is fast to establish and an efficient soil covering capacity. When sown before August the crop sets flowers in the same year, but unwanted seed setting is only a problem when sowing too early (i.e. first half of July). Late flowering varieties are preferable. Fodder Radish will aid soil structure and fertility and certain varieties can reduce cyst nematodes in a number of crops including sugar beet and potatoes.

GREEN CROPS

Black Oats (Avena strigosa)

- Sow 25Kg per acre

A new catch crop with a high capacity to reduce free living nematodes (Pratylenchus ssp). Quick to establish, oats will out compete weeds.

Westerwolds

(*Lolium mul. westerwoldicum)*

- Sow 14Kg per acre

A fast establishing annual ryegrass. Usually sown with a Nitrogen fixing crop such as vetch, due to its nitrogen lifting capabilities.

GREEN CROPS

Lucerne (*Medicago sativa)*

- Sow 7Kg per acre

A fast establishing crop with a vigorous deep rooting system that will draw up sub surface minerals.

Persian Clover

(*Trifolium resupinatum)*

- Sow 5Kg per acre

An annual clover suited to most soil types and used in situations where a short term Nitrogen boost is needed.

Crimson Clover (Trifolium incarnatum)

- Sow 10Kg per acre

A fast growing, bulky annual clover used in short breaks to rapidly boost soil fertility.

GREEN CROPS

Niger (*Guizotia abyssinica)*

- Sow 10Kg per acre

A new species for catch crop use. Niger produces a flower that is very attractive to bees. Also has a high susceptibility to frost.

Forage Rye (*Secale cereale*)

- Sow 50Kg per acre

Forage rye lifts Nitrogen from the soil and holds it, so when incorporated back into the soil it slowly releases the Nitrogen for following crops to utilise.

For farmers who are growing Nitrogen hungry crops (oil seed rape) sowing an intercrop mixture of a Nitrogen fixing legume (Red clover/vetch) and a Nitrogen lifting crop like (Italian ryegrass/forage rye) will be very beneficial.

GREEN CROPS

Sudangrass

(Sorghum Sudanese x Sorghum bicolor)

In warm climates sudangrass is used as a forage plant. Also used as a catch crop due to its canopy which provides shelter and works as a windbreak for protecting more vulnerable crops.

The following data sheets are on varieties we intend to carry during 2015.

Varieties available may change through the season due to a number of factors one of which is consumption.

For each species there will be one or two varieties available and if the variety changes it will be of equal quality.

Phacelia

Phacelia tanacetifolia

Ploidy	Diploid
Leaf Length	Medium
Begin Flowering	Early to Medium
Stem Length	Medium to Long
Development After Emergence	Medium
Natural Height	Medium
Tendency to Form Flowers	Medium
Tendency to Lodging	Medium to Strong

Phacelia is a good catch crop, not winter hardy and excellent for minimum tillage.

Yields of dry matter per hectare are about 3 tons (German results).

Useful in every crop rotation.

Non host of sugar beet cyst nematodes, Herodera schachtii.

Very good pre-crop of vegetables but not for potatoes.

Sowing rate: 6Kg/acre when early sowing, 16Kg/ha for later sowing

Sowing Depth: 2cm necessary

Manuring: 60Kg N/ha

Rumba

White Mustard—Class 2+

Nematode Resistant

Rumba is a white mustard of the new generation.

It has a high capacity to reduce beet cyst nematode Herodera schachtii.

Rumba is fast establishing with a good soil covering foliage. It also has a deep rooting system and these qualities makes it an excellent crop for use as a green manure.

Rumba has a high capacity of N uptake.

Useful for early sowing because it is a very late flowering variety.

Sowing rate: 10Kg/acre row distance same as cereals

Manuring: 60Kg N/ha

Weed control and insecticides not necessary.

Sonet

Bitter Blue Lupin

Lupinus augustifolious

Colour of Flower	Blue
Basic Colour	Grey
Begin Flowering	Early to Medium
Plant Length	Very Short to Short
Yield	Medium
Crude Protein Yield	Medium

Sowing rate: 80-100 Seeds

Soil Preparation: Fine seed bed

Row Distance: 12-15cm (30cm weed control mechanical)

Sowing Depth: 2-4cm

Yields: 10-25 dt/ha

Villana

Hairy Vetch

Vicia villosa

Hairy Vetch, Villana is a winter-hardy, annual legume.

It is one of the best nitrogen fixers, superior to peas and equal to red clover.

It is most useful in vegetable crop rotations when sown in late summer.

Since it is slow to establish, it is usually sown with a nurse crop. Once established, it is good at weed suppression and soil conditioning.

Hairy vetch is slow to establish and often needs a nurse crop, usually oats or rye. Wait a minimum of three years before another legume crop is planted because hairy vetch supports root rot and lesion nematodes.

Land preparation

Preparation of a well drained seedbed free of weeds and compacted soils.

Soils low in phosphorus, potassium, or sulphur may need fertiliser for effective nitrogen fixation.

Tolerates a wide range of PH.

Sowing Rate

Drill 20-25Kg/acre. Drilling is preferred for uniformity. When seeding with winter rye, plant hairy vetch at 10Kg/ha and winter rye at 120.

Jose

Common Vetch

Vicia sativa

Colour of Flower	Violet
Plant Length	Medium
Begin Flowering	Medium to Late
Plant Length	Medium
Tendency to Lodging	Medium
Development after Sowing	Medium to Strong
Dry Matter Yield	Medium to Strong
Crude Protein Yield	Medium to Strong

Sowing rate: 60Kg/acre

Sowing time: End of July/Middle of August

Sowing Depth: 4-6cm

Row Distance: Same as cereals

Sowing Depth: 2-4cm

Milwa

Forage Pea

Pisum sativum

Colour of Flower	Pink
Tendril	Semi Leafless
Tendency to Lodging	Low
Development	Medium to Strong
Dry Matter Yield	Medium
Crude Protein Yield	Ca. 22.5% - 22.5%

Sowing rate: 10Kg/acre

Sowing time: July to beginning of September

Sowing Technique: Drill

Row Distance: Same as cereals

Manuring: Slurry is sufficient; 60Kg N/ha

Alex—Akenaton

Egyptian Clover

Trifolium alexandrinum

Variety	Begin Flowering	Development at the Beginning	Development in aftermath	Tendency to Lodging	DM-yield 1st Cut	Crude Protein Content
Alex	5	5	5	6	4	5
Akenaton	5	4		5	5	5

Alex—Mid-early flowering, strong development at the beginning.

Akenaton—Mid early flowering, high yielding variety with low tendency to lodging.

Sowing

After early harvested cereals or as a main crop sown in spring. In mixtures 10Kg Egyptian Clover + 20Kg Annual Ryegrass or Italian Ryegrass.

Pure Seed: 60Kg/acre

Sowing Depth: 1-2cm

Row Distance: Same as cereals

Lileja

Buckwheat

Fagopyrum esculentum

Buckwheat is a pseudo-cereal (non-grass).

Lileja is a fast growing variety, excellent for suppressing weeds.

High susceptibility to frost.

Seed Rate: 30Kg/acre

Sowing Depth: 2-4cm

Sowing Time: As a catch crop until August as grain use middle of May

Row Distance: 12-15cm

Cassius

Fodder Radish

Resistance class II

Cassius is a very late flowering fodder radish with white and violet colour of the petals. It also has a high resistance against the sugar beet nematode, Heterodera schachtii.

Cassius is fast establishing with a very deep root system. Foliage covers soil and suppresses weeds.

Cassius has a low tendency to lodging.

The colour of the petals is 50% violet and 50% white.

Dense foliage and long stems means Cassius will take up nitrates and will also add a lot of organic matter.

Fast emergence will require N application.

Cassius can be sown early and best reduction effects will be after ploughing.

Sowing rate: 4Kgs/acre

Row Distance: Same as cereals

Manuring: 60Kg N/ha

Weed control and insecticides are not necessary.

Row Distance: Same as cereals

Maximus

Fodder Radish

Resistance Class I

Maximus is a late flowering fodder radish with a high resistance against the sugar beet nematode Heterodera schactii. This nematode can decrease the sugar beet yield more than 30% in the field.

Maximus is fast establishing with a deep rooting system.

Maximus has a low lodging tendency.

The colour of the petals is 50% violet and 50% white.

Dense foliage and long stems means maximus will take up nitrates and will also add a lot of organic matter.

Fast emergence will require N application.

Best results for a high reduction are ploughing before seeding and an early sowing date.

Sowing rate: 4Kgs/acre

Row Distance: Same as cereals

Manuring: 60Kg N/ha

Weed control and insecticides are not necessary.

Luxurial

Black Oats

Avena strigose

Luxurial is a diploid oat.

Luxurial has a strong allopathic and nematicide effect.

Drought resistant and adaptable to unfertile soil.

Frost susceptible at -4/-5°C.

Very resistant to rust and common rust, does not require an insecticide or fungicide control during its development.

Crude protein 13 to 15%.

Very good palatability and digestibility.

Sowing rate: 25-45Kgs/ha

Can be broadcast or row planted at 17-20cm.

Arg

Annual Ryegrass

Tetraploid

Arg is a species mainly used for spring sowing as a main crop or for sowing after cereals as a short term ryegrass.

A fast growing grass excellent at suppressing weeds.

Fantastic yields

Excellent for hay and silage

Fast establishing

Good persistence

Low susceptibility to lodging

Sowing rate: 14-20Kg per acre

Luzelle

Lucerne

Medicago sativa

Luzelle is a bred variety (Flemish type) with good fresh and dry matter yields. It also has excellent resistance to verticillium albo-atrum.

Luzelle can be used for fresh feeding, silage, hay and pellet production and is a very good variety for cattle and beef farms.

Lucerne likes chalky, deep soils and can be used on its own or in mixtures with grasses. The highest feeding value will be given between bud and flowering stage, Once a year Luzelle must be in flowering stage to transfer carbohydrates in the root system to enhance winter hardiness and persistence,

High tolerance to grazing

Sow in the spring

Low tendency to lodging

Sowing Rate: 7-15Kgs/acre

Persian Clover

Trifolium Resupinatum

Persian clover is well adapted to most soil types from sandy loams through to heavy clay soils.

Persian clover will perform best on moderate to heavy soil that is neutral to alkaline.

Vigorous erect growth but susceptible to rust.

Persian Clover can provide an effective disease break in cropping rotations and has the ability to fix high levels of soil Nitrogen.

Apply group O Rhizobium to seed prior to sowing. Inoculation is essential to ensure sufficient nodulation occurs and maximise nitrogen fixation.

Persian clover demonstrates late maturity, flowering approximately 160-180 days after sowing. Flower times will vary depending on the season.

Use as a one year rotational crop as problems with rust.

Suited well to hay and silage but not tolerant to heavy grazing and should be treated as a fodder crop and grazed rotationally.

Sowing rate: 5Kgs/acre

Contea

Crimson Clover

Trifolium incarnatum

Contea is a late flowering variety with a red violet flower which develops at the end of May and is more compact to earlier varieties.

Adaptable to the majority of soil types.

Works well in mixtures with Italian ryegrass and vetches.

It can be used for pasture, silage, hay and green manure.

High frost and disease tolerance.

Sowing rate: 5Kgs/ha

SuSu

Sudangrass

Sorghum sudanense x Sorghum bicolor

SuSu can grow up to 2.5m and has the highest nutritive value when cut at a height of 1.2—1.3m. Fed fresh or as a silage for biogas purposes.

Has good regrowth and as a main crop fresh matter yields of more than 1000 dt are possible. Can be used as a late main crop after early harvested potatoes or as catch crop.

Sowing time: After mid May (soil temperature > 14-15 °C

Sowing rate: 15Kg/acre

Row spaces: 20—35cm (green forage)/50cm for silage use

Fertiliser: 100 - 50Kg - 60Kg N/acre to each cut. P and K depends on the results of soil analysis.

Use: Forage crop, cover crop and catch crop (For fresh feeding of grazing plant height must be a minimum 60 - 70cm up to 150cm). It can also be used for silage production.

Low susceptibility to: Mildew, brown rust, maize dwarf mosaic virus, Puccina ssp. Fusarium.

Tillers	Often
Sugar Content	High
Moisture	High
Plant Length	-210cm
Diameter	Round

all things rural

Wholesale Seed