# Welcome **YOUR COUNTRYSIDE 2021**

A warm welcome to all who regularly receive our spring catalogue and to those who are reading it for the first time, we hope you find it informative.

Each year brings its own challenges to growers and this year has been no exception. After a difficult start to the year accompanied by increased pest pressures, growers are now faced with new further challenges due to Brexit. Our diverse range of species and choice of specialist mixtures can be found in our comprehensive catalogue, which brings together Game Cover, Environmental Stewardship, Roots and Cover Crops. We hope you find Your Countryside 2021 a useful and informative guide.

#### **RESEARCH AND DEVELOPMENT**

All the species marketed by DLF Seeds Ltd. are trialled at our Gloucestershire site. In consultation with many of our customers, we trial and evaluate many different types of products and mixture prescriptions. We believe this is the most important part of the process as we procure seed from more than a dozen countries, so testing and evaluating performance under UK conditions is vital. Our customers may rest assured that they are dealing with a forward thinking company which invests heavily in R&D, majoring in forage crops but also focusing on many other crop species. Our Product, Species and Mixture of the year have been carefully selected using customer feedback.

Our main goal is to ensure that our customers receive the best possible product portfolio we can supply for the stewardship schemes and the Your Countryside catalogue continues to offer valuable technical information and advice on a diverse range of game cover, environmental stewardship mixtures, root crops and cover crops products.

However, if you are unable to find exactly what you are looking for within this catalogue, please contact your local technical expert who will be able to assist and advise you on your specialist mixture.

### THE LATEST PRODUCTS **NEW UPDATES, VARIETIES & MIXTURES**

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Supporting farmers to help their local wildlife

Farm Wildlife provides farmers and advisers with best practice guidance on helping wildlife on their farms and inspiring them to take action. Farm Wildlife guidance has been produced by a partnership of some of the UK's leading conservation organisations and the farmers they work with.

The 6 point plan to manage arable farms for wildlife provides advice on how to enhance:

| 1. Existing habitats    | 2. Field boundaries |
|-------------------------|---------------------|
| 3. Flower-rich habitats | 4. Wet features     |
| 5. Seed-rich habitats   | 6. Farmed areas     |







giving nature (SDD) a home





For more information go to www.farmwildlife.info

#### We gratefully acknowledge all photographic contributions.



Natural England, RSPB, Campaign for the Farmed Environment, Game and Wildlife Conservation Trust, Bumblebee Conservation Trust and Floral Locale



<sub>ế</sub> Bumblebee Conservation



giving

nature

romoting the restoration of wild *flora* locale plants and habitats for biodiversity, ndscapes and people w.floralocale.org

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**FORAGE CROPS Forage Crop Selector** 

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**Green Manuring Crops** 

**Game Cover Selector** 

**Game Cover Crops** 

**Arable Silage** 

Turnips

Swedes

Kale

**Forage Rape** 

Fodder Beet

# SHEEP GRAZING

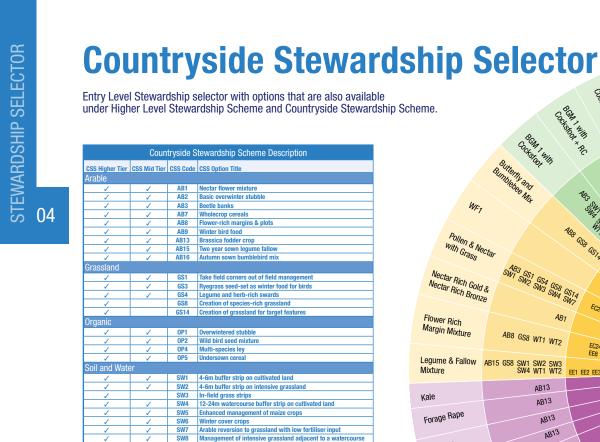
CULINARY USE











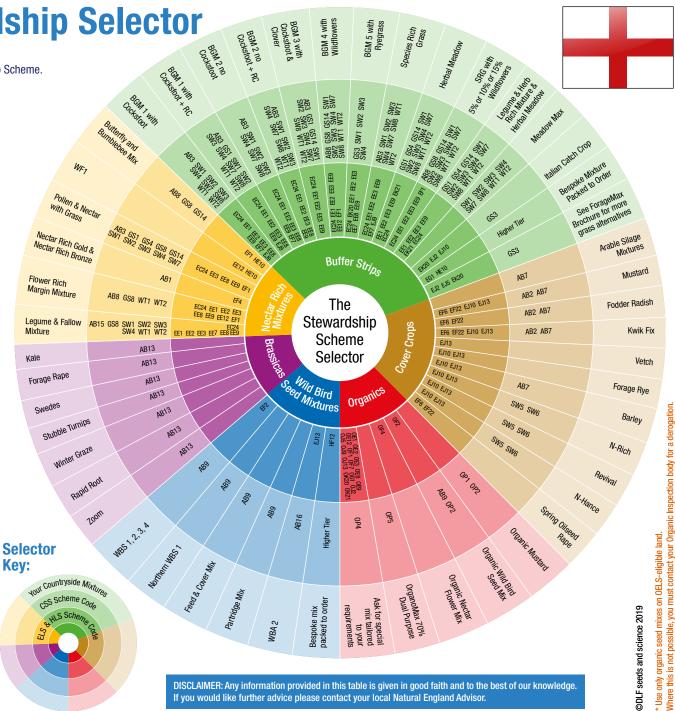
| 1              | 1            | SW8     | Management of intensive grassland adjacent to a watercourse    |  |  |
|----------------|--------------|---------|----------------------------------------------------------------|--|--|
| Wetlands       |              |         |                                                                |  |  |
| <i>√</i>       | 1            | WT1     | Buffering in-field ponds and ditches in improved grassland     |  |  |
| 1              | 1            | WT2     | Buffering in-field ponds and ditches in arable land            |  |  |
|                |              | EL      | S & HLS Description                                            |  |  |
|                |              | OELS    |                                                                |  |  |
| ELS Code       | HLS Code     | Code*   | ELS & HLS Description                                          |  |  |
| Options for tr | ees and wo   | oodland |                                                                |  |  |
| EC24           |              |         | Hedgerow tree buffer strips on cultivated land                 |  |  |
| Options for b  | uffer strips |         |                                                                |  |  |
| EE1            |              | 0E1     | 2m Buffer strips on cultivated land                            |  |  |
| EE2            |              | 0E2     | 4m Buffer strips on cultivated land                            |  |  |
| EE3            |              | 0E3     | 6m Buffer strips on cultivated land                            |  |  |
| EE8            |              | 0E8     | Buffering in-field ponds in arable land                        |  |  |
| EE9            |              | 0E9     | 6m buffer strips on intensive grassland next to a watercourse  |  |  |
|                | HE10         |         | Floristically enhanced grass buffer strips (non-rotational)    |  |  |
| EE12           |              | 0E12    | Supplement to add wildflowers to field corners & buffer strips |  |  |
| Options for a  | rable land   |         |                                                                |  |  |
| EF1            |              | 0F1     | Management of field corners                                    |  |  |
| EF2            |              | 0F2     | Wild bird seed mixture                                         |  |  |
| EF4            |              | OF4     | Nectar flower mixture                                          |  |  |
|                |              |         |                                                                |  |  |

#### EF7 0F7 Beetle banks HF12 Enhanced wild birdseed mix plots (rotational or non- rotational) **EF22** Extended overwintered stubble Options to encourage a range of crop types EG1 OG1 Under sown spring cereals options to protect soil and wa EJ2 0J2 Management of maize crops to reduce soil erosion EJ5 0J5 In-field grass areas to prevent erosion and run-off EJ9 0J9 12m buffer strips for watercourses on culitvated land EJ10 Enhanced momt, of maize crops to reduce soil erosion & run off

**OF6** 

| EJ13          |             | 0J13       | Winter cover crops                                 |
|---------------|-------------|------------|----------------------------------------------------|
| Options for g | rassland ou | utside the | e severely disadvantaged areas (SDAs)              |
| EK20          |             | 0K20       | Ryegrass seed-set as winter/ spring food for birds |
| EK21          |             | 0K21       | Legume and herb-rich swards                        |
|               |             |            |                                                    |

Overwintered stubb



seed mixes on OELS-eligible land. ossible, you must contact your Org \* Use only organic seed mixes Where this is not possible, you

# **Nectar Rich Mixtures**

WF1 (AB1)



"Pro Flora 1 Flowers Only, provided a fantastic show of colour from July to October. The all native annual mixture has produced an abundance of nectar, attracting many species of pollinators and invertebrates."

Eamon McAllister. Portalenone. Co. Antrim.

> 1 2

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ENVIRONMENTAL 05

#### **NECTAR RICH MIXTURES**

| Butter       | fly & Bumblebee Mixture (AB8) |
|--------------|-------------------------------|
| 15%          | Creeping Red Fescue           |
| 15%          | SSMG                          |
| 10%          | Browntop Bent                 |
| 10%          | Hard Fescue                   |
| 10%          | Sheeps Fescue                 |
| 7%           | Lucerne (inoculated)          |
| 5%           | Yorkshire Fog                 |
| 4.5%         | Hairy Vetch                   |
| 4%           | Birdsfoot Trefoil             |
| 4%           | Kidney Vetch (N)              |
| 4%           | Alsike Clover                 |
| 2%           | Tufted Hairgrass              |
| 1.5%         | Ribwort Plantain              |
| 1%           | Agrimony (N)                  |
| 1%           | Phacelia                      |
| 1%           | Red Campion (N)               |
| 1%           | Musk Mallow                   |
| 1%           | White Campion (N)             |
| 0.75%        | Oxeye Daisy                   |
| 0.5%         | Black Knapweed (N)            |
| 0.5%         | Field Scabious                |
|              | Selfheal (N)                  |
| 0.5%         | Wild Carrot                   |
| 0.25%        | Field Pansy (N)               |
| <b>100</b> % |                               |
| Sowin        | g rate 16kg/ha                |
| Pack s       | ize 1kg                       |
|              |                               |

(N) = UK Native Seed

sourced to the highest possible standard.

DLF Seeds Ltd. is a leading supplier of native provenance wild flowers.

We liaise with selected producers and growers to ensure our seed is

#### 42% Sainfoin 10% Birdsfoot Trefoil 8% Winter Vetch 7% Alsike Clover 7% Red Clover 6% Yarrow 5% Lucerne (inoculated) 2.25% Crimson Clover 2% Black Medick 2% Oxeye Daisy 1.5% Corn Cockle (N) 1.25% Musk Mallow 1.25% Wild Carrot 1% Red Campion (N) 1% Selfheal 0.75% Cornflower (N) 0.5% Corn Marigold (N) 0.5% Field Poppy (N) 0.5% Salad Burnet (N) 0.5% White Campion (N) 100%

Sowing rate 5 - 10kg/ha Pack size 1kg

#### Nectar Rich Bronze (AB1)

45% Sainfoin 25% Winter Vetch 8% Red Clover 7.5% Birdsfoot Trefoil 7% Alsike Clover 4% Crimson Clover 3% Lucerne (inoculated) 0.25% Oxeve Daisv 0.25% Wild Carrot 100% Sowing rate 10 - 15kg/ha

Pack size 12kg Annual Nectar Mixture 25% Buckwheat

22% Sainfoin 20% Phacelia 10% Crimson Clover 10% Lucerne (inoculated) 7% Red Clover 6% Alsike Clover 100%

Sowing rate 10kg /ha Pack size 5kg

**MIXTURES** 

**SOLAR** 

#### Nectar Rich Gold (AB1)

100%

40% Sainfoin 18% Winter Vetch

- 10% Alsike Clover
- 10% Red Clover
- 10% Birdsfoot Trefoil 10% Lucerne (inoculated)
- 1.5% Musk Mallow
- 0.5% Yarrow

Sowing rate 10 - 15kg /ha Pack size 12kg

#### **ORGANIC MIXTURE**

**Organic Nectar Flower Mixture** 32.5% Organic Early English Winter Vetch

- 27.5% Organic Lucerne (inoculated)
  - 18% Sainfoin
  - 6% Organic Red Clover
  - 6% Birdsfoot Trefoil
  - 6% Alsike Clover
  - 4% Organic Crimson Clover

#### 100%

Sowing rate 10 - 15kg/ha Pack size 10kg

#### Our range of Solar Mixtures will cater for most situations. We are always pleased to advise. Please call for more information. Specialised mixtures to suit individual requirements can be arranged.

### **NATIVE WILDFLOWER MIXTURES**



**COLOUR BOOST** 

RANGE

**COLOUR BOOST 1** 

**High Impact Annuals** 

flowering period, from

8 weeks to first frost.

- Our range of Pro Flora Wild Flower mixtures will cater for most situations. We are always pleased to advise upon and produce mixtures to suit individual specifications. View the online
  - Flora 29
- 12 13 14 digital brochure **110** General Purpose Economy (N)
- www.bit.ly/33sCi74 Pack size 1kg

**COLOUR BOOST 2** 

Sowing Rate 3-5qm/m<sup>2</sup>

#### A range of 100% wildflower mixtures providing colourful flowers, essential food source and habitat for many pollinating insects.

#### **COLOUR BOOST 3**

Cornfield Annuals (N)

Damp Loamy Soils (N)

Calcareous Soils (N)

Wet Loamy Soils (N)

Dry Loamy Soils (N)

General Purpose (N)

Tall Herb & Tussock (N)

Hedgerow & Light Shade (N)

Legacy Country Meadow (N)

Heritage General Purpose (N)

Woodland & Heavy Shade (N)

Water Margin & Pond Edges (N)

Species Rich Lawn & Landscape (N)

Acid Soils (N)

High Impact Perennials Seasonal Perennial mixture, comprising 90% perennial species and 10% annual species. Sowing Rate 3-5gm/m<sup>2</sup>

#### **COLOUR BOOST 6**

Summer Chameleon Annuals

40 species constantly changing throughout the growing season.

Sowing Rate 3-5gm/m<sup>2</sup>

**COLOUR BOOST 4** 

#### Sowing Rate 3-5gm/m<sup>2</sup>

High Impact **Low-Grow Annuals** Quick to establish. long Low arowing mixture. 100% Dwarf flower mixture. Sowing Rate 3-5gm/m<sup>2</sup> Sowing Rate 3-5gm/m<sup>2</sup>

# **COLOUR BOOST 5**

**Roses and Reds Annuals Summer Yellows Annuals** Designed to flower from late Mix of Yellows flowering from Spring through to Autumn. late Spring well into Autumn.

# **Flower Rich Margins**

#### **FLOWER RICH MARGINS**

| Pollen & Nectar        |
|------------------------|
| with Grass (GS4)       |
| 15% SSMG               |
| 10% Cocksfoot          |
| 10% Festulolium        |
| 10% Red Clover         |
| 10% Sainfoin           |
| 10% Timothy            |
| 8% Birdsfoot Trefoil   |
| 6% Winter Vetch        |
| 5% Creeping Red Fescue |
| 5% Tall Fescue         |
| 5% Tall Oat Grass      |
| 3% Alsike Clover       |
| 2% Black Medick        |
| 0.3% Musk Mallow       |
| 0.3% Oxeye Daisy       |
| 0.2% Selfheal          |
| 0.15% Yarrow           |
| 0.05% Sheeps Burnet    |
| 100%                   |
| Sowing rate 20kg/ha    |
| Pack size 10kg         |

**BGM 4 with Wildflowers** & Fine Grasses (AB8) 30% Creeping Red Fescue 22% SSMG 20% Chewings Fescue 10% Hard Fescue 4% Sainfoin 4% Crested Dogstail 3% Winter Vetch 2% Browntop Bent 1.4% Red Clover 1% Alsike Clover 0.5% Birdsfoot Trefoil 0.5% Black Medick 0.4% Yarrow 0.4% Oxeye Daisy 0.3% Wild Carrot 0.25% Ribwort Plantain 0.25% Sheeps Burnet 100% Sowing rate 16 - 20kg/ha Pack size 20kg

#### Flower Rich Margin Mixture (AB8) 25% Slender Red Fescue 25% SSMG 12% Chewings Fescue 10% Crested Dogstail 5% Hard Fescue 3.5% Winter Vetch 3.25% Sainfoin 3% Browntop Bent 2.5% Birdsfoot Trefoil

2.5% Birdstoot (refoil 2% Black Medick
2% Red Clover
1.25% Oxeye Daisy
1.20% Wild Carrot
1.20% Yarrow
1% Red Campion (N)
1% Ribwort Plantain
0.5% Musk Mallow
0.25% Selfheal
0.25% Lady's Bedstraw
0.1% Salad Burnet (N)

#### 100%

Sowing rate 16 - 20kg/ha Pack size 10kg & 20kg



DISCLAIMER: In any instances where there are shortages of specified

species we reserve the right to substitute equivalent species.

# Bumblebee Conservation Trust supporting wild pollinators on your land

#### **Bumblebee** Conservation Trust

Bumblebees and solitary bees are very important pollinators of both commercial agricultural crops and wild flowers. Many UK species have declined in recent years due to habitat loss. Bumblebees rely on flower rich habitats from March to September to provide essential nectar resources for colony growth. They also require undisturbed tussocky grassland for nesting.

There are a number of ways these habitats can be provided on arable and livestock farms, including planting pollen and nectar margins or wildflower buffer strips and implementing a more sensitive management regime; no/ very light application of farm-yard manure, no chemical fertilizers, taking a late hay cut (Mid-July to August) allowing wildflowers to set seed and adopting a sensitive grazing regime.

Details on how you may improve your land for bumblebees and other pollinators can be found in our series of land management fact sheets: www.bumblebeeconservation. org/get-involved.We can also offer tailored advice in our target areas.

Please contact advice@bumblebeeconservation.org

#### **SPECIES RICH WILD FLOWERS MIXTURES**

**Species-Rich Wild Flowers** (SRWF)\* Native 20% Selfheal (N) 10% Birdsfoot Trefoil (N) 10% Black Medick (N) 10% Ribwort Plantain (N) 8% Black Knapweed (N) 8% Oxeye Daisy (N) 8% Yellow Rattle (N) 6% Red Campion (N) 5% White Campion (N) 4% Yarrow (N) 3% Lady's Bedstraw (N) 3% Ragged Robin (N) 3% Red Clover (N) 1% Field Scabious (N)

1% Meadow Vetchling (N)

100% Pack size 1kg

o : p: i o (0p)

#### Species-Rich Grass (SRG)\*

- 20% SSMG
- 20% Creeping Red Fescue
- 20% Browntop Bent
- 10% Meadow Fescue
- 10% Sheeps Fescue
- 10% Hard Fescue
- 10% Crested Dogstail
- 100% Pack size 20kg





 \* Species-Rich Wild Flowers are available separately or as a mixture of grasses (SRG) & flowers (SRWF) together in the following ratios:

95% SRG with 5% SRWF 90% SRG with 10% SRWF 85% SRG with 15% SRWF

Sowing Rate 16kg/ha Pack size 20kg

Flower Rich Grass

Margins provide mportant habitat for invertebrates and birds



#### **BUFFER STRIPS MIXTURES**

#### BGM 1 with Cocksfoot

30% Creeping Red Fescue 20% SSMG 20% Tall Fescue 15% Cocksfoot 15% Timothy 100% Sowing rate 20kg/ha Pack size 20kg

#### BGM 1 RC Red Clover and Cocksfoot

25% Creeping Red Fescue 20% SSMG 20% Tall Fescue 15% Timothy 15% Cocksfoot 5% Red Clover 100% Sowing rate 20kg/ha Pack size 20kg

#### 25% Creeping Red Fescue 20% Chewings Fescue 20% SSMG 20% Tall Fescue 15% Timothy 100% Sowing rate 20kg/ha Pack size 20kg

BGM 2 no Cocksfoot

#### BGM 2 RC Red Clover no Cocksfoot 25% Creeping Red Fescue 20% Chewings Fescue 20% SSMG 15% Tall Fescue 15% Timothy 5% Red Clover 100% Sowing rate 20kg/ha Pack size 20kg

#### (N) = UK Native Seed

DLF Seeds Ltd. is a leading supplier of native provenance wild flowers. We liaise with selected producers and growers to ensure our seed is sourced to the highest possible standard.

# BGM 3 with Cocksfoot and Clover 25% Creeping Red Fescue

20% Tall Fescue 15% Cocksfoot 15% SSMG 15% Timothy 5% Birdsfoot Trefoil 5% Small White Clover 100% Sowing rate 20kg/ha Pack size 20kg

#### BGM 5 with Ryegrass (GS3)

Ryegrass seed set as winter food for birds 40% Italian Ryegrass 30% Inter. Perennial Ryegrass 30% Late Perennial Ryegrass 100% Sowing rate 35kg/ha

Pack size 20kg



STAND

2020<sup>\*</sup>

PRODUCT

with Grass (AB15) 2 Year Agreements starting on or before 1st Jan 2020 66% Late Perennial Ryegrass 15% Red Clover 10% Winter Vetch 7% Birdsfoot Trefoil 1% Yarrow 1% Oxeye Daisy 100% Sowing rate 30 - 40kg/ha Pack size 20kg OUTSTANDING PRODUCT OF THE YEAR

Everyone's talking about it!

#### Legume Fallow Mixture Flower Rich (AB15) 2 Year Agreements starting on or after 1st Jan 2021 50% Winter Vetch 15% Lucerne

15% Red Clover 10% Alsike Clover 5% Birdsfoot Trefoil

5% Black Medick

Sowing rate 15 - 20kg/ha Pack size 20kg



# **FALLOW MIXTURES**



Fallow Mixture No.1

50% Late Perennial Ryegrass (T) 35% Late Perennial Ryegrass (D) 10% Timothy 5% White Clover Blend

100%

Sowing rate 30 - 35 kg/ha

#### Fallow Mixture No.2

50% Late Perennial Ryegrass (T) 40% Late Perennial Ryegrass (D) 10% Timothy

100%

Sowing rate 30 - 35 kg/ha

#### Fallow Mixture No.3

55% Late Perennial Ryegrass (T) 40% Late Perennial Ryegrass (D) 5% White Clover Blend

100%

Sowing rate 30 - 35 kg/ha

Pack size 20kg

07

Legume & Herb **Rich Mixtures** provide reliable forage & beneficial pollinators & improve soil

ENVIRONMENTAL

# **Legume & Herb Rich Mixtures**

Legume and herb-rich mixtures provide an abundance of productive grazing for livestock whilst providing habitat and food source for invertebrates and pollinators. supporting biodiversity.

structure

Herbal levs develop a beneficial soil structure through the increase of organic matter due to the variety of species used and the length of time they are in the soil. Grasses offer the reliable bulk forage in these mixtures. These levs replace organic matter lost through rotation and also supply a valuable forage crop for livestock grazing or cut for silage.

The Nitrogen fixing ability of legumes, reduces the need for artificial fertilisers. as well as increasing the protein content which directly enhances DLWG or milk production. Deep rooting herbs break through damaged soil structure providing livestock with access to vital nutrients and minerals. Herbs act as a natural anthelmintic, reducing reliance on wormers.

**DISCLAIMER: Stock should be introduced** gradually over a two week period and an area of grassland should be available for animals to return to: water and hav or straw should also be made available. Please contact your supplier for further guidance.

### **HERBAL MIXTURES**

#### Legume & Herb Rich Mixture (GS4)

- 25% Late Perennial Ryegrass 20% Festulolium
- 15% Timothy 10% SSMG
- 10% Creeping Red Fescue
- 10% Red Clover
- 5.6% Sainfoin
- 1.43% Lucerne (inoculated)
- 1% Birdsfoot Trefoil 1% Sheeps Burnet
- 0.5% Bibwort Plantain
- 0.25% Yarrow
- 0.2% Sheeps Parsley 0.02% Wild Carrot

#### 100%

Sowing rate 32 - 37kg/ha Pack size 20kg

#### Organic multi species mixture **OP4** available on request



#### Herbal Meadow (GS4)

27% Late Perennial Ryegrass 20% Festulolium 11% Timothy 10% Red Clover 10% SSMG 7% Cocksfoot

- 5% Lucerne (inoculated) 4.5% Sainfoin 2% Birdsfoot Trefoil
- 1% Fenuareek 1% Perennial Chicory
- 0.7% Ribwort Plantain 0.5% Sheeps Burnet
- 0.25% Yarrow

0.05% Sheeps Parslev

#### 100%

Sowing rate 30 - 35kg/ha Pack size 20kg

#### HerbMax 1 Light Land

- 20% Cocksfoot 15% Foitan Tall Fescue Plus<sup>™</sup>
- 15% Sainfoin
- 10% Timothy
- 10% Intermediate Perennial Ryegrass
- 6% Sheeps Burnet 5% Lucerne (inoculated)
- 5% Red Clover Blend
- 4% Ribwort Plantain
- 3% Birdsfoot Trefoil
- 2.5% Dual Purpose White Clover Blend
- 2.5% Alsike Clover

100%

Sowing rate 32kg/ha

Pack size 10kg

#### Mixed Herbs 26% Sainfoin 23% Sheeps Burnet 20% Ribwort Plantain 15% Sheeps Parslev 13% Chicory

#### 100%

Sowing rate Variable Pack size 1kg & 5kg



#### HerbMax 2 Medium to Heavy Land

- 16% Late Perennial Ryegrass 14% Timothy 12% Fojtan Ťall Fescue Plus™ 8% Cocksfoot 6% Meadow Fescue
- 6% Red Clover Blend
- 6% Sheeps Burnet
- 4.5% Ribwort Plantain

- 2% Sheeps Parsley

3% Yarrow



- 15% Intermediate Perennial Ryegrass

- 4% Dual Purpose White Clover Blend
- 3.5% Birdsfoot Trefoil
- 3% Alsike Clover

Sowing rate 35kg/ha

Pack size 10kg

2% Sheeps Parsley 100%

#### **Rapid Gain Mixture** 49% Late Perennial Ryegrass (T)

20% Perennial Chicory 15% Red Clover 10% White Clover 6% Ribwort Plantain

#### 100%

Sowing rate 20kg/ha Pack size 20kg

#### Gromore Mixture

35% Late Perennial Ryegrass (T) 30% Ribwort Plantain 20% Red Clover 15% White clover

#### 100%

Sowing rate 20kg/ha Pack size 20kg

#### HerbMax 3 Conserve & Graze

20% Lofa Hybrid Ryegrass Plus" 18% Late Perennial Ryegrass 16% Intermediate Perennial **Ryegrass** 14% Timothy 8% Chicory 8% Cocksfoot 6% Red Clover Blend 4% Plantain 4% Dual Purpose White Clover Blend 2% Alsike Clover 100%

Sowing rate 30kg/ha Pack size 10kg

#### **NITROGEN FIXING MIXTURES**

#### **EFA Nitrogen Rich Mixture**

76% Winter Vetch 12% Crimson Clover 12% Red Clover

#### 100%

Sowing rate 32 - 35 kg/ha Pack size 20kg

#### **EFA Nitrogen Fixing Ley**

52% Red Clover 30% Late Perennial Ryegrass (T) 18% Late Perennial Ryegrass (D)

#### 100%

Sowing rate 22 - 25kg/ ha Pack size 20kg



# **Herbs and Legumes**

#### **PLANTAIN**

A perennial herb providing a high mineral forage with a crude protein content of around 20%. Plantain provides all-year round grazing, even in drought conditions. Often mixed with other herbs, this species provides well tillered plants in high density mixtures that will complement the grazing system.

Pack size 1kg & 25kg



#### **CHICORY**

A mineral-rich herb with a long taproot which infiltrates the soil to a great depth and can break through soil compaction. Chicory is a high protein, anthelmintic species that lifts trace elements from within the soil profile that are then made available for intake by livestock. This highly productive species is especially good for fattening lambs. If not well managed, chicory can become tall and woody therefore good management is essential to maintain feed quality.

Pack size 2kg & 25kg

### **SHEEPS BURNET**

A perennial herb which helps to provide a long grazing season attributable to its early spring growth. A wellestablished taproot improves drought tolerance within a sward whilst aiding the supply of vital trace elements to livestock.

Pack size 1kg & 25kg

#### **SHEEPS PARSLEY**

Often mixed with other forage herbs, this species has a deep taproot that is able to lift trace elements from great soil depths whilst also aiding drought tolerance. Recognised for its high iron content along with vitamins A and C, Sheeps Parsley can prove a valuable addition to grazing swards.

Pack size 1kg

# YARROW

A forage herb with a very deep rooting structure that has been noted to improve circulation and blood flow in livestock. Yarrow is commonly mixed with Sheeps Parsley, Burnet and Plantain although due its it minute seed size, should only be included at a low rate to ensure that it does not dominate the sward.

Pack size 1kg



### SAINFOIN

Sainfoin acts as a natural anthelmintic and the condensed tannins this legume contains aids protein absorption thus improving feed conversion efficiency by livestock. Unlike other species, Sainfoin will not cause bloat in livestock and as little as 10% in a sward will offset the risk of bloat created from other legumes. Best suited to light soils, the deep rooting system of Sainfoin provides a droughtresistant forage that requires no nitrogen fertiliser and little phosphate. This legume prefers alkaline soils and although slow to establish, it is a persistent species. Sainfoin also increases biodiversity by attracting an abundance of insects and invertebrates, especially pollinators.

Sowing rate 85-90 kg/ha Pack size 1kg & 25kg

Organic seed available in 25kg packs



# LUCERNE

A persistent, perennial legume that performs particularly well on light, drought prone soils due to its deep, penetrating root system. The roots improve soil structure and aid fertility by fixing atmospheric nitrogen. Above the soil surface, Lucerne produces a high protein, palatable forage crop that is an excellent accompaniment to energy feeds in a ration.

Pack size 25kg

Organic seed available in 25kg packs

### **BIRDSFOOT TREFOIL**

A nitrogen-fixing, anthelmintic species which helps boost soil fertility. Like Sainfoin, this species contains tannins to support the absorption of protein by both sheep and cattle. Birdsfoot Trefoil is continually included in diverse mixtures owing to its contribution of beneficial properties both above and below the soil surface.

Pack size 1kg & 25kg



# **RED CLOVER**

A high protein, nitrogen-fixing forage legume that can be grown on almost all soil types. When grown as part of a mixture, clover greatly increases the forage yield for both grazing and cutting.

Pack size 1kg & 25kg Organic seed available in 25kg packs

# **10 Wild Bird Seed Mixtures**



"This bespoke mixture provides high levels of insect activity (biodiversity) and benefits to wildlife along with a large quantity of nutritious seed for the birds. I like an open game cover that not only holds the birds but also allows them to move freely."

Tom Carter, **North Dorset** 

#### **SPRING SOWN MIXTURES**

| WBS 1 | (AB9) | 1 Year | Spring | Sown |  |
|-------|-------|--------|--------|------|--|
|-------|-------|--------|--------|------|--|

- Attracts Tree Sparrows
- 45% Spring Triticale
- 30% Spring Barley
- 15% Spring Wheat
- 5% White Millet
- 3% Fodder Radish
- 2% Red Millet

#### 100%

Sowing rate 40kg/ha Pack size 20kg



For Higher Tier & HLS these mixtures must be agreed with the local Natural England Advisor before ordering seed.

Bespoke mixtures can be packed to

| Treatment | Some   | species | may | be | treated |  |
|-----------|--------|---------|-----|----|---------|--|
| nouunoni  | 001110 | 000000  | muy | 20 | uoutou  |  |

| WBS 2      | (AB9) 1 - 2 Year Spring Sown |
|------------|------------------------------|
| Attract    | s Grey Partridge             |
| <b>45%</b> | Spring Triticale             |
| 20%        | Spring Barley                |
| 15%        | Spring Wheat                 |
| 7%         | Kale                         |
| 4%         | Fodder Radish                |
| 4%         | White Millet                 |
| 3%         | Quinoa                       |
| 2%         | Red Millet                   |
| 100%       |                              |

Sowing rate 40kg/ha Pack size 20kg



#### WBS 3 (AB9) 1 Year Spring Sown Attracts Finches & Buntings 50% Spring Triticale 15% Spring Barley

**ORGANIC WILD BIRD SEED MIXTURE 1** 

- 15% Spring Wheat
- 8% White Mustard
- 7% Linseed
- 5% Forage Rape
- 100%

Sowing rate 40kg/ha Pack size 20kg

1 Year Spring Sown (OP2) 35% Organic Spring Wheat

20% Spring Triticale

3% Fodder Radish

5% White Millet

2% Red Millet

100%

35% Organic Spring Barley

Sowing rate 40kg/ha Pack size 20kg

| WBS 4 | 4 (AB9) 1 Year Spring Sown   |                                                      |
|-------|------------------------------|------------------------------------------------------|
|       | ts Finches & Buntings        | STANDIN                                              |
| 45%   | Spring Triticale             | *2020 <sup>*</sup> *                                 |
| 25%   | Spring Barley                |                                                      |
| 8.5%  | Dwarf Sorghum                | PRODUCT                                              |
| 7%    | White Millet                 | OF THE YEAR                                          |
| 5%    | Linseed                      |                                                      |
| 4%    | Japanese Reed Millet         |                                                      |
| 3%    | Red Millet                   | WBS 4 - Herbicide                                    |
| 2.5%  | Gold of Pleasure             | tolerant, but please<br>discuss with your            |
| 100%  |                              | agronomist for                                       |
|       | ng rate 40kg/ha<br>size 20kg | current specific<br>products and<br>recommendations. |

**OUTSTANDING PRODUCT OF THE YEAR** Everyone's talking about it!

#### **ORGANIC WILD BIRD SEED MIXTURE 2**

| - 2 | Year | Spring | Sown | (OP2 |
|-----|------|--------|------|------|
|     |      |        |      |      |

- 35% Organic Spring Wheat
- 35% Organic Spring Barley
- 10% Spring Triticale 7% Kale
- 4% Fodder Radish 4% White Millet
- 3% Quinoa
- 2% Red Millet

100%

Sowing rate 40kg/ha Pack size 20kg



Sowing rate 40kg/ha Pack size 20kg



7% Dwarf Sorghum

- 100%

# Wild Bird Seed Mixtures

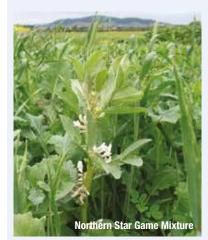
#### NORTHERN SPRING SOWN MIXTURES

#### Partridge Mixture (AB9)

- 40% Spring Barley
- 30% Spring Triticale
- 15% Linseed
- 10% Spring Oats
- 4% Gold of Pleasure 1% Kale

#### 100%

Sowing rate 62kg/ha Pack size 25kg



#### Northern Shot Mixture 35% Spring Triticale 25% Spring Barley 20% Spring Wheat

- 10% Kale 5% Hybrid Brassica
- 2% Perennial Chicory
- 2% Yellow Blossom Clover
- 1% Green Fennel
- 100%

Sowing rate 50 - 60kg/ha Pack size 20kg

#### **Northern Star Game Mixture**

- 34% Spring Beans
- 30% Spring Triticale
- 20% Spring Wheat
- 5% Forage Rape 5% Kale
- 2% Gold of Pleasure
- 2% Quinoa
- 2% Yellow Blossom Clover

#### 100%

Sowing rate 50kg/ha Pack size 20kg

#### **Treatment Some species may be treated**

Other mixtures Decoy Mixture – pg 35 that also may be suitable for AB9:

#### Northern WBS 1 (AB9) **1 Year Spring Sown**

- 60% Spring Triticale 20% Spring Barley
- 8% Linseed
- 4% White Mustard
- 4% Forage Rape
- 2% Phacelia
- 2% Fodder Radish

#### 100%

Sowing rate 40kg/ha Pack size 20kg

#### 2 Year Spring Sown 50% Spring Triticale

Northern WBS 2

- 10% Spring Barley
- 10% Spring Wheat
- 7% Kale
- 7% Quinoa
- 7% Fodder Radish
- 4% Yellow Blossom Clover
- 3% Green Fennel 2% Red Clover

#### 100%

Sowing rate 40kg/ha Pack size 20kg

#### **NON CEREAL MIXTURES**

#### Northern WBS 2

- Non Cereal
- 23% Kale
- 23% Quinoa
- 23% Fodder Radish
- 14% Yellow Blossom Clover
- 10% Green Fennel
- 7% Red Clover

#### 100%

Sowing rate 12kg/ha Pack size 10kg

#### The small seed element of Northern WBS2 and Farmland (Wild) Bird Seed Mixture without cereals have been formulated for those who have access to home grown cereals.

### **AUTUMN SOWN MIXTURES**

Wild Bird Seed mixtures provide important food

resources for farmland birds & insects

#### WBA 1

#### (AB16) 1 Year Autumn Sown

- 25% Winter Triticale
- Winter Wheat 25%
- 20% Winter Barley 6% Vetch
- **Fodder Radish** 5%
- 5% Forage Rape
- Gold of Pleasure 3%
- Lucerne (inoculated) 3%
- 2% Alsike Clover
- 2% Birdsfoot Trefoil 2%
- Crimson Clover 2% Red Clover

#### 100%

Sowing rate 40 - 50kg/ha Pack size 20kg

#### WBA 2 Autumn Sown Bumblebird Mixture (AB16) 2 Year Autumn Sown

- 25% Winter Triticale
- 15% Winter Barley
- 15% Winter Wheat **Fodder Radish** 8%
- 6% Winter Vetch
- 5.3% Gold of Pleasure
- 5% **Birdsfoot Trefoil**
- 5% Lucerne (inoculated)
- 5% Crimson Clover 5% Kale
- **Red Clover** 2.5%
- 2% Phacelia
- 0.4%
- Oxeye Daisy Wild Carrot 0.4%
- 0.4% Yarrow
- 100%

Sowing rate 40 - 50kg/ha Pack size 20kg

#### Farmland (Wild) Bird Seed Mixture Non Cereal 45% Linseed 25% Buckwheat 17% Fodder Radish

- 10% White Millet
- 3% Phacelia

#### 100%

Sowing rate 20kg/ha

Pack size 10kg

# Scottish Rural Development Agri-Environment Climate Scheme (AECS)

### **AECS Options that require Seed**

Wild Bird seed for Farmland Birds Pages 10 - 11. Page 11 - Non Cereal Mixtures specifically for those who wish to use their own cereal

**Creation of Beetle Banks, Water Margins and Grass Strips** BGM 4 with wildflowers, legumes and fine grasses Pages 5, 6 & 7

Creation of Species Rich Grassland Pages 6 & 12

Stubbles followed by green manure in an arable rotation Pages 12, 16 - 19

Forage brassicas for Farmland Birds Pages 37 - 43

# **AECS Green Cover Crops**

Stubbles followed by Green Manure in an arable rotation

Where winter cereals are sown after green cover SPRING GREEN COVER MIXTURE

#### 60% Buckwheat

30% Crimson Clover 10% Egyptian Clover 100%

Sowing rate 12-15 kg/ha Pack size 20 kg Alternative mixtures Annual Nectar Mixture and Kwik Fix



Pages 5, 6, 7 & 8 of this brochure contain many other mixtures designed for herbal meadows, fallow ground, pollen and nectar, nitrogen fixing and wild flowers, many of which suit AECS options.

#### Where winter cereals are sown after green cover

OVER WINTER GREEN COVER RYE MIXTURE

85% Forage Rye

15% Red Clover

Sowing rate 25 kg/ha

Pack size 25 kg Alternative mixtures N-Rich Cover Mixture

#### OVER WINTER GREEN COVER GRASS MIXTURE

85% Italian Ryegrass

15% Red Clover

Sowing rate 25 kg/ha Pack size 25 kg Alternative mixtures N-Rich Cover Mixture

#### **NORTHERN SPECIES RICH GRASS** & 15% NATIVE WILD FLOWERS

25% Creeping Red Fescue
15% SSMG
10% Crested Dogstail
10% Hard Fescue
10% Meadow Fescue
10% Sheeps Fescue
5% Browntop Bent
15% Native Wild Flowers UK Provenance
100%

Sowing rate 16-20 kg/ha Pack size 20 kg



(N) = UK Native Seed

#### www.gov.scot/topics/farmingrural/agriculture

\*Disclaimer – The information provided in this catalogue is given in good faith and to the best of our knowledge at the time of printing. Any advice should therefore be taken as a general guide and not relied upon for all conditions and circumstances. We cannot accept any legal liability for information given in this guide.



# **BPS Scotland - Greening** A guide to Ecological Focus Area (EFA) Mixtures

| <b>EFA Fallow Land</b> (EFAFAL) <b>Scottish Government Basic Payment Scheme – Greening</b><br>Fallow Period 15th January to 15th July . No agricultural production between these dates. Wild Bird Mixtures & Wild<br>Flower mixtures are encouraged and may be sown during the fallow period. After the fallow period is over grass<br>may be cut or grazed. After the 16th July, plan ahead for 2022 and sow a late heading mixture after 16th July.                                                       | EFA<br>Weighting<br>1.0 | Fallow<br>Mixture<br>1, 2 & 3BGM 1<br>&<br>BGM 1 RC<br>PAGE 7BGM 2<br>&<br>BGM 2 RC<br>PAGE 7BGM 3<br>&<br>BGM 4<br>PAGE 6 & 7WBS 1<br>PAGE 1Northern<br>WBS 1<br>PAGE 10Farmlan<br>WId Bin<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>EFA Margins</b> (EFAM) <b>Scottish Government Basic Payment Scheme – Greening</b><br>Period is 1st January to 31st December. They should be around the margin of a field or split 2 crops within a<br>field. Must be between 1m and 20 m wide. You are allowed to cut for hay or silage after 15th July. If not beside a<br>watercourse it may be grazed. Wild flower, wild bird seed and normal grass mixtures may be established.                                                                      | EFA<br>Weighting<br>1.5 | BGM 1<br>&<br>BGM 1 RC<br>PAGE 7       BGM 2<br>&<br>BGM 2 RC<br>PAGE 7       BGM 3<br>PAGE 7       BGM 3<br>PAGE 7       BGM 4<br>PAGE 6       Northern<br>WBS 1<br>PAGE 6       WBS<br>1, 2,<br>3 & 4       Any<br>Grass<br>Mixture                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>EFA Catch Crops</b> (EFACC) <b>Scottish Government Basic Payment Scheme – Greening</b><br>Establish the crop in spring. The only catch crop you can grow will be a cereal nurse crop with undersown grass.<br><b>It should be a recognised grass seed mixture.</b> The catch crop must be retained until at least the 31st December.<br>You may graze the catch crop after harvest of the main crop.                                                                                                     | EFA<br>Weighting<br>0.3 | Any Recognised<br>Grass Mixture<br>Italian<br>Catch Crop<br>Mixture                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>EFA Green Cover</b> (EFAGC) <b>Scottish Government Basic Payment Scheme – Greening</b><br>Establish the green cover crop by 1st November. Maintain the green cover up to 31st December inclusive.<br>Do not graze during the maintenance period 1st November and 31st December. It must be a mixture of 2 or more<br>of the following: Alfalfa, barley, red clover, white clover, mustard, oats, phacelia, radish, rye, triticale and vetch.                                                             | EFA<br>Weighting<br>0.3 | Over Winter<br>Green Cover<br>Grass MixOver Winter<br>Green Cover<br>Rye MixSpring<br>Green Cover MixN – Rich<br>Cover MixPAGE 12PAGE 12PAGE 12PAGE 12PAGE 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>EFA Nitrogen Fixing Crops</b> (EFA-NFIX) <b>Scottish Government Basic Payment Scheme – Greening</b><br>You must ensure that all EFA nitrogen-fixing crops are surrounded by a claimed EFA margin. You cannot harvest<br>before 1st August to protect ground nesting birds. You must grow 2 of the following; Alfalfa, beans, birdsfoot trefoil,<br>chickpea, red and white clover, lentils, lupins, peas and vetch. Mixtures are allowed, but the nitrogen-fixing species<br>must be dominant by weight. | EFA<br>Weighting<br>1.0 | Alfalfa PAGE 9 & 17 Birdsfoot Trefoil PAGE 9 Alfalfa Peas & Beans Peas & Beans Peas & Beans Page 9 & 17 PAGE 9 & 1 |
| EFA Hedges (EFAH)<br>EFA Agro-Forestry (EFAAF)<br>These are EFA options for Scotland that do not require any seed.                                                                                                                                                                                                                                                                                                                                                                                          | – Various               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

# **I4 Glastir Welsh Environmental Scheme**

Glastir is the All-Wales Agri-Environment Scheme introduced by the Welsh Assembly Government. It is a 5 year whole farm sustainable land management scheme available to farmers and land managers across Wales. Since 2012 it has replaced the four existing agri-environment schemes, Tir Gofal, Tir Cynnal, Tir Mynydd and the Organic Farming Schemes.



# Glastir will ensure that future environmental challenges can be met by:

- COMBATING CLIMATE CHANGE
- IMPROVING WATER MANAGEMENT
- MAINTAINING AND ENHANCING BIODIVERSITY

It is designed to deliver measurable outcomes at both a farm and landscape level in a cost effective way.

#### **Glastir consists of three elements:**

#### 1. ALL-WALES ELEMENT (AWE)

A whole farm land management scheme which is open to application from all farmers and land managers throughout Wales. It is designed to provide support for the delivery of environmental benefits that meet today's challenges and priorities. Successful applicants will make a commitment to deliver environmental goods for five years under a legally binding contract.

#### 2. TARGETED ELEMENT (TE)

A part farm scheme intended to deliver significant improvements to the environmental status of a range of habitats, species, soils and water that might also require changes to current agricultural practices. In order to achieve these specific improvements and outcomes, financial support from the Welsh Government will be targeted at locations where action will lead to the required result.

#### 3. COMMON LAND ELEMENT (CLE)

Designed to provide support for the delivery of environmental benefits on common land.

# **Option 32** Plant unsprayed root crops on improved grass and arable land

- White Turnips see stubble turnip varieties and green globe turnips on page 38
- Swedes see page 41
- Fodder Beet see page 40
- Soft Yellow Turnips
- Hardy Yellow Turnips

# **Option 33** Establish a wildlife cover crop on improved grass and arable land

For mixture option see WBS3 page 6.

These mixtures must include at least 80% cereal with at least one of the following - mustard, linseed, rape.

These mixtures are designed to provide both nesting sites and a food source for overwintering species such as tree sparrow, finches, buntings, skylark, grey partridge, yellowhammer and barn owl.

# **Option 153** Red clover must make up at least 80% of the sward

Mixtures of red clover cultivars are permitted as is using a percentage of birdsfoot trefoil seed.

# **Biogas Crops**

#### Over recent years interest has increased in the production of crops for Anaerobic digestion plants.

#### The advantages are:

- · Replacement of fossil fuels
- Reduction of emissions of greenhouse gases
- Reduced impact of slurry
- Less leaching of nitrogen
- Less odour
- Conversion of waste and reducing the need for landfill

Production of Biogas is increased when an energy dense substrate is used to supplement slurry.

To this end, crops can be used as an alternative to waste with the added advantage of not requiring a waste disposal licence.

For a farmer developing a biogas plant, high output crops are a necessity. Also, for the grower with a plant in the neighbourhood, biogas cropping represents a useful source of income.

#### The criteria for suitable crops are:

- High yield of DM per hectare
- High gas potential
- Low costs for growing and handling
- Ease of management and storage

### **MAIZE SILAGE**

Maize is a well-known source of biogas, having the advantages of a high methane yield per acre and being relatively easy to store.

When choosing varieties, high dry matter and high yields are the major considerations; however yields of ME and starch should also be taken into account.

Dry matter at harvest is vitally important. For efficient ensiling the maize needs to achieve a dry matter content of between 30% and 32%. Some of the ultra high yielding varieties grown on the continent for Biogas may not reach this maturity in the UK climate.

### RYE

**Comparison** 

vield from

different

of gas

crops

Rve has become very popular in the UK in recent years. We have varieties being tested against hybrid, conventional and forage rye types.

Yield, tonnes drv matter/ha

% drv matter

% ash in dry matter

#### BEET

Beet is the preferred option for 'feeding' anaerobic digesters, adapting well to many soil and climate types. It has the highest yield potential amongst all other arable crops and also has the highest dry matter. Due to its higher levels of sugar it has a shorter retention time in the digester than other crops which have a higher lignin and cellulose content. However storage is more difficult for beet, than other crops.

When selecting a variety, yield is of primary importance but cleanliness of the roots should also be considered. Varieties with a smooth root and low dirt tare should be chosen and for this reason Enermax is the perfect choice.

Close cropping of energy beet should be avoided as a build up of rhizomania or beet cvst nematode can occur - the crop should not be grown more often than one in three years on the same ground.

DLF have a dedicated breeding programme for Energy Beets.

Beet

13

20

8

### **GRASS SILAGE**

**Grass silage** 

11.5

33

10

Grass is an extremely versatile crop; it is a good source of material for feeding anaerobic digesters, good for crop rotation, good for the environment and also adapts well to many different soil and climate types. It can be planted in the autumn after a beet or maize crop and be ready for a silage cut in the spring.

High yielding species such as tall fescue and festuloliums, have a very high yield potential and they can in many situations compete with maize. Grass and grass with clover work very well in an anaerobic digester mixed with slurry. thus improving the yield of gas.

Grass is a perennial crop with a good environmental profile, improving crop rotation and bringing long term benefits to soil fertility.



| S | Nm3 methane/tonnes organic matter                | 352                          | 435                           | 307                       |
|---|--------------------------------------------------|------------------------------|-------------------------------|---------------------------|
|   | Comparison of gas yield from different crops. Ba | sed on budget estimates fron | n VFL DK. Søren Ugilt Larsen, | Agrotech DK 2010 and 2011 |

Maize silage

11

33

3







**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 encouraging weed suppression.

There are some disadvantages and whilst these are few they should also be noted - lost opportunities for cash cropping, exacerbated pest and disease problems (green bridge effect), and the potential for green manures to become weeds in their own right. These problems can be overcome with thought and measured usage, and the benefits to future crops cannot be dismissed lightly. Green manures not only improve soil status, composition and nutrient balance but provide a basis for a more environmentally friendly approach to modern farming. We need to focus our minds on the twin problems of high artificial fertiliser prices and the soil's need for basic nutrients with these being available in a more sustainable form.

A wide range of plant species can be used as green manures. Different crops bring different benefits and the final choice is influenced by many considerations. If the most is to be made of green manuring crops, it is important that they are carefully integrated into the crop rotation and proper attention paid to their husbandry.

Green manures can be categorised as spring sown for summer usage and autumn sown for over-winter usage, intercropping and longer term fertility improvement.

Nitrogen (N) in legumes comes from uptake of soil N and the fixation of N from the atmosphere. The amount of N fixed by different legumes is determined by the inherent capacity of the crop/rhizobium symbiosis to fix N, modified by the crop's growing conditions (e.g. soil, climate, disease), crop management and length of time for which the crop is grown. Consequently, the influence of all these factors means that a wide range of values has been reported by different researchers. The presence of soil mineral N is generally thought to reduce fixation capacity. Factors that will increase the soil mineral N pool include manure application, cutting and mulching, and grazing. Fixation tends to decrease with legume age, mainly because the amount of soil N tends to increase.

Where growth of legumes is affected by nutrient deficiency (or acidity) the potential for soil N build up is reduced. Phosphorus, Sulphur and some trace elements (e.g. Molybdenum) are particularly important. Where there are large off-takes of soil nutrients as in silage crops both Phosphorus and Potash supplies need to be adequate for satisfactory legume growth. These should be replaced as they are essential to the legume to enable it to maximise the fixing of nitrogen.

#### NEMATODES IN UK FARMING

#### **ROOT KNOT NEMATODES**

- · Produce galls and can severely damage plant health
- Crops most at risk are:- peas, onions, carrots, parsnips, and spring wheat

#### CYST NEMATODES

- Beard like objects which grow and live on root surfaces
- · Widespread in Europe and many parts of the world
- Crops most at risk are:- potatoes, sugar beet, rape and beetroot

#### LESION NEMATODES

- Produce necrotic lesions throughout the cortex of infected roots
- Crops most at risk are carrots, parsnips, maize and legumes

#### STUBBY ROOT NEMATODES

- · Plant roots have a stunted stubby appearance
- Infected roots become less capable of supplying nutrients
- Crops most at risk:- potatoes, sugar beet, onions, carrots and parsnips

#### STEM NEMATODES

- Can cause distortion in the stems in winter beans and necrotic area on the plant leaves
- Crops most at risk :- potatoes, onions and winter beans

#### THEIR EFFECT ON AGRICULTURAL CROPPING

Nematodes behave in different ways: Ectoparasitic forms – feed externally on plant roots and Endoparasitic forms – invade the roots internally. Both forms cause damage, resulting in an overall reduction in yield or affect the marketability of the crop.

Nematodes, also known as eelworms and roundworms. There are over 28,000 distinguishable species, of which 16,000 are parasitic.

Approximately 50% are detrimental to plant health. Damage caused by nematodes can emerge differently from crop to crop. But there are a few symptoms which can appear, that are common to all.

- Stunted plants
- Plants wilt and appear to have no vigour
- Stem malformation
- Yellowing
  - Root Galls
  - Deformed roots and abnormal growth
  - · Plant death

Globally, parasitic species can reduce agricultural production by approximately 12%.

| Сгор                                             | Pack<br>size       | Av sowing rate kg/ha | Treatment<br>type                   | Sowing<br>dates             | Incorporation<br>period       | Root type/depth                                    | Soil type                                                                          | Nitrogen Fixing<br>or Storing Plant | Useful information and growing tips                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------|--------------------|----------------------|-------------------------------------|-----------------------------|-------------------------------|----------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Short Term C                                     | rops               | Spring/Summ          | er Sowing &                         | Summer/Au                   | tumn Incorporat               | ion                                                |                                                                                    |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| White Mustard                                    | 10kg &<br>25kg     | 12 - 17              | Untreated<br>& <mark>Organic</mark> | Spring - Early<br>Autumn    | 8 weeks<br>after sowing       | Fibrous root system                                | All types, best on light, sandy soils                                              | Storing                             | Fast growing and good weed suppressor. Has biofumigation properties but not to same extent as<br>brown mustard. Produces large quantities of biomass. Excellent scavenger of nitrogen. Requires fine<br>seedbed. Susceptible to Club root. Plough in before flowering to prevent self-seeding.                                                                                                                           |
| Brown Mustard                                    | 5kg &<br>25kg      | 5 - 7.5              | Untreated                           | Spring -<br>Autumn          | Autumn - Spring               | Taproot                                            | All types, prefers moist ground                                                    | Storing                             | As white mustard, but contains high levels of glucosinolate which create biofumigation properties to<br>reduce wireworm infestation. To maximise this benefit, crop must be finely chopped at flowering and<br>thoroughly incorporated into moist soil. Brown mustard is winter hardy so is excellent for reducing<br>soil erosion, water run-off and fertiliser leaching when grown after maize, potatoes & sugar beet. |
| Phacelia                                         | 2kg, 5kg<br>& 10kg | 7.5 - 10             | Untreated<br>& Organic              | Spring -<br>Summer          | 10 - 12 weeks<br>after sowing | Shallow, fibrous                                   | Most soil types, will tolerate<br>dry conditions                                   | Storing                             | Quick to establish and a good weed suppressor. Flowers loved by bees and butterflies. The crop must<br>be incorporated into the soil before setting seed or it may reappear in subsequent crops as a weed.<br>Said to release many minerals into soil as it decomposes, especially P, Ca and Mg.                                                                                                                         |
| Buckwheat                                        | 10kg &<br>25kg     | 50 - 70              | Untreated<br>& Organic              | Spring -<br>Summer          | Summer - Autumn               | Shallow, but with good penetration                 | Tolerates poor, but not<br>wet soils                                               | Storing                             | Fast growing and quick to mature, not winter hardy. Dislikes wet, heavy or compacted soil. Do not<br>allow to set seed before incorporating into soil. Attractive to beneficial insects especially hoverflies.<br>Good scavenger of phosphate.                                                                                                                                                                           |
| Crimson Clover                                   | 1kg &<br>25kg      | 12.5 - 15            | Untreated<br>& Organic              | Spring                      | Summer - Autumn               | Taproot with fibrous<br>branch roots               | Prefers loam, will tolerate<br>poor soils as long as alkaline<br>and free draining | Fixing                              | Very attractive to insects. Excellent weed suppressor. Biomass degrades quickly into soil.<br>Will over-winter in Southern England for autumn sowing/spring incorporation. Shade tolerant.                                                                                                                                                                                                                               |
| Alsike Clover                                    | 25kg               | 5 - 7.5              | Untreated                           | Spring                      | Autumn                        | Branched taproot<br>Deep rooting                   | Most types                                                                         | Fixing                              | Less biomass than red and white clover but better adapted to wet, acid soils and cooler conditions. Requires shallow sowing and firm seedbed.                                                                                                                                                                                                                                                                            |
| Fodder Radish                                    | 10kg &<br>25kg     | 10 - 20              | Untreated<br>& Organic              | Summer -<br>Autumn          | Autumn - Spring               | Deep rooting<br>taproot                            | Most types                                                                         | Storing                             | Good early vigour that gives quick soil coverage, with a large biomas and a large taproot. Excellent Nitrogen scavenger.                                                                                                                                                                                                                                                                                                 |
| Daikon Radish                                    | 5kg &<br>25kg      | 8 - 10               | Untreated                           | Summer -<br>Autumn          | Autumn - Spring               | Deep penetrating<br>taproot                        | Most types                                                                         | Storing                             | Fast establishing, big biomas, long large white tubers. Excellent for breaking up compacted soil with<br>its aggressive taproot. An excellent nitrogen scavenger.                                                                                                                                                                                                                                                        |
| Egyptian/<br>Berseem Clover                      | 25kg               | 10 - 22              | Untreated                           | Spring - Early<br>Summer    | Later Summer -<br>Autumn      | Taproot with fibrous root network                  | Needs deep fertile soils<br>(uncompetitive)                                        | Fixing                              | Annual clover. Grows aggressively throughout the summer and autumn. Likes deep fertile soils with<br>plenty of moisture. Produces large amounts of biomass along with fixing large quantities of nitrogen.<br>A good cover crop to put between two cereal crops.                                                                                                                                                         |
| Black Oats/<br>Japanese Oats<br>(Avena strigosa) | 25kg &<br>500kg    | 50 - 75              | Untreated                           | Later<br>Summer -<br>Autumn | Winter - Early<br>Spring      | Fibrous root system                                | Grow in most soil types<br>and conditions                                          | Storing                             | Grows well under most conditions. Early vigour, quickly producing lots of biomass due to the<br>plant rapidly tillering. Can flower early. The fast establishment helps to suppress weeds. Good at<br>disrupting disease cycles. Not frost hardy.                                                                                                                                                                        |
| <b>Over Winter (</b>                             | Crops              | Autumn Sowi          | ng & Spring                         | Incorporatio                | n                             |                                                    |                                                                                    |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Forage<br>Winter Rye                             | 25kg &<br>500kg    | 90 - 150             | Untreated                           | Autumn                      | Spring                        | Extensive, fibrous<br>root system                  | Grows well on light, sandy,<br>free-draining soils                                 | Storing                             | Produces large amounts of green material. Excellent nitrogen scavenger and for the prevention of<br>nitrate leaching during winter months. Do not allow to run to seed as this will 'lock-up' available<br>nitrogen. Very hardy.                                                                                                                                                                                         |
| Italian Ryegrass                                 | 25kg               | 35 - 38              | Untreated<br>& Organic              | Autumn                      | Spring                        | Extensive, fibrous root system                     | Diploids better in wet areas<br>and tetraploids in drier                           | Storing                             | As with forage rye, produces high yields of biomass. Good root system for improving soil structure.<br>If seed heads are produced, crop must be cut before seed is shed to prevent infestation of following<br>crop. Good 'mopper-up' of excess soil nitrogen.                                                                                                                                                           |
| Cocksfoot                                        | 15kg -<br>20kg     | 5 - 7.5              | Untreated<br>& Organic              | Spring /<br>Autumn          | Autumn - Spring               | Thick and fibrous<br>with large energy<br>reserves | Dry, free-draining                                                                 | Storing                             | When undersown at a low seed rate into winter wheat, cocksfoot is an excellent soil improver for drought-prone soils.                                                                                                                                                                                                                                                                                                    |
| Forage Rape                                      | 10kg &<br>25kg     | 6.5 - 10             | Untreated<br>& <mark>Organic</mark> | Spring /<br>Autumn          | Autumn - Spring               | Deeply penetrating<br>taproot                      | Most types, able to tolerate<br>poor soil & exposed sites                          | Storing                             | 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                                          | 25kg               | 60 - 90              | Untreated<br>& Organic              | Spring /<br>Autumn          | Autumn - Spring               | Taproot                                            | Prefers loams and clay.<br>Will not thrive in wet or<br>waterlogged conditions     | Fixing                              | 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<br>Pre-inoculated                        | 25kg               | 20 - 25              | Untreated<br>& <mark>Organic</mark> | Spring - Early<br>Autumn    | Autumn - Spring               | Very deep taproot                                  | Light/chalky/free-draining                                                         | Fixing                              | Seed must be inoculated with rhizobium bacteria. Prefers dry growing conditions. Uncompetitive<br>particularly in early stage of development so grow as pure stand or with non-aggressive companion<br>grasses.                                                                                                                                                                                                          |
| White Clover                                     | 1kg &<br>25kg      | 5 - 7.5              | Untreated<br>& Organic              | Spring - Early<br>Autumn    | Autumn - Spring               | Creeping stolons,<br>Shallow rooting               | Wide range. Tolerates dry<br>conditions                                            | Fixing                              | 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                                       | 1kg &<br>25kg      | 12.5 - 15            | Untreated<br>& Organic              | Spring - Early<br>Autumn    | Autumn - Spring               | Large, strong<br>taproot                           | Wide range, avoid poorly<br>drained, acid soils                                    | Fixing                              | 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<br>Clover                         | 2kg &<br>25kg      | 12.5 - 15            | Untreated                           | Spring                      | Summer - Autumn               | Long taproot                                       | Prefers poor soil and dry<br>conditions. Dislikes wet,<br>heavy ground             | Fixing                              | Biennial. Quick to establish and grows vigorously. Improves soil structure. Plough in before flowering<br>and before stems become woody. Attractive to bees and other insects if allowed to flower.                                                                                                                                                                                                                      |

GREEN MANURING

Cover Crops have many soil structure benefits

### **INCORPORATION OF GREEN MANURE**

Incorporation is most effective when plants are young and succulent and the crop is cut and chopped to produce a mulch before turning it into the soil. This allows it to decompose quickly and release nutrients to be used by the following crop.

Some crops, however, require nitrogen to be available at a later stage, in which case they will benefit from the green manure crop being left to become more mature. Decomposition and the release of nutrients will take longer and will be more likely to be available at the right time in the crop's development.

It is very important not to sow too early because of the allelopathic effect of the decomposing plants on germinating seeds.

# **Green Manuring Crops**

### **DAIKON RADISH**

A rapid growing crop that produces a large amount of biomass. It has the ability to reduce nematodes and is also an excellent weed suppressor. It produces a long aggressive taproot that penetrates through many different soil types, improving drainage and air movement through the soil. A major benefit is that it captures and stores nutrients from deep in the soil over the winter period, which are released in the spring for the next crop. It can provide much needed cover throughout the winter months for game birds or can be used as an excellent fast growing, nutrient storing green manure crop.

Sowing rate 8 - 10kg/ha Pack size 5kg & 25kg Treatment Untreated

DISCLAIMER The table on page 17 is given in good faith and intended for general guidance only. Weather, local conditions and crop rotations must always be taken into account.

**Daikon Radish** 

Club

Root

**Folerant** 

#### WHITE MUSTARD

Popular as a green manure crop. A relatively inexpensive and highly versatile cover crop either sown alone or as a companion to other species. It is a fast growing and good weed suppressor. Has bio fumigation properties but not to the same extent as brown mustard. It is ideal for early cover and produces large quantities of biomass although killed off by frost later. White Mustard is an excellent scavenger of nitrogen. Destroy before flowering to prevent self-seeding. Some varieties are nematode resistant.

Sowing rate 12 - 17kg/ha Pack size 10kg & 25kg Treatment Untreated Organic seed available in 25kg packs

#### BROWN MUSTARD

A fast growing green manure crop with bio fumigation properties, i.e. it suppresses soilborne pests and diseases. It is an easy to establish 50 - 70 day crop that can be sown between April and September. Unlike white mustard, it is winter hardy. It will improve the health of the soil by increasing organic matter and acts as an excellent weed suppressant. It is also especially useful as over-wintering green cover after maize, potatoes and sugar beet crops, reducing soil erosion, fertiliser leaching and water run-off.

Sowing rate 5 - 7.5kg/ha Pack size 5kg Treatment Untreated

#### FODDER RADISH (OIL RADISH)

A fast growing cover crop, its speed of establishment aids weed suppression. It has a long tap root which will improve the soil structure and also has plenty of leaf that produces a large quantity of organic matter. An excellent nitrogen scavenger. Some varieties are nematode resistant.

Sowing rate 10 - 20kg/ha Pack size 10kg & 25kg Treatment Untreated Organic seed available in 25kg packs

# BLACK OATS / JAPANESE OATS - AVENA STRIGOSA

A rapid growing leafy cereal crop which has early vigour with good weed suppression. It will produce large amounts of organic matter. Destroy before flowering to prevent self-seeding. Not winter hardy.

Sowing rate 50 - 75kg/ha Pack size 25kg & 500kg Treatment Untreated

#### FORAGE RYE

A cereal crop that produces large amounts of organic matter and suppresses weeds. An excellent nitrogen scavenger that helps the prevention of nitrate leaching during the winter months. Winter hardy. Do not allow it to run to seed as this will lock up available nitrogen.

Sowing rate 125 - 185kg/ha Pack size 25kg & 500kg Treatment Untreated

#### AVALON LEAFY TURNIP

Avalon is a very leafy turnip that is late flowering, covers the soil very fast and is winter hardy. This variety can be sown in spring or autumn and for forage production these leafy turnips can be grazed after just 6-8 weeks. Avalon also has a very high dry matter yield and excellent resistance to Alternaria.

Sowing rate 5 - 7.5kg/ha Pack size 10kg & 25kg Treatment Untreated

#### **ROCKET LETTUCE**

This crop flowers rather late with an average early vigour. Rocket lettuce is like oil radish; a dual purpose in regards to diseases and pest control. This crop is suitable as a biological controller of cyst nematodes H. schachtii and betae, and fights root knot nematodes M. chitwoodi and incognita. This, combined with high levels of glucosinolate, makes Rocket a good biofumigant.

Sowing rate 10kg/ha Pack size 5kg Treatment Untreated

# FOR SPRING SOWING AND SUMMER INCORPORATION

Spring sown, summer crops are usually annual crops that as a rule do not tolerate frost. They are quick growing and will suppress weeds by light deprivation as well as providing organic material to improve soil structure and organic status. As they are usually fleshy crops and do not contain high proportions of carbon when incorporated into the soil, they do not substantially reduce stocks of soil nitrogen in the breaking down of the plant structure.

# AUTUMN SOWING & SPRING INCORPORATION

Autumn sown crops which go through the winter will scavenge nitrogen from soils thus preventing leaching which is taken much more seriously these days. They can be incorporated in the following spring or can provide a source of forage, prior to incorporation and also help to control erosion especially on late harvested maize stubbles. Certain species can be utilised to provide a nitrogen fixer which is then readily available to a spring sown crop.

#### LONGER TERM CROPS

Grass and clover leys for long term fertility building must by their nature form part of the rotation. The increased duration of the sward ensures that the grass element provides a very strong root system valuable for soil aeration, whilst the legumes with their deeper root system will improve water filtration through the soil structure whilst also providing increased soil nitrogen.

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# **Green Manuring Mixtures**

Our range of green manure mixtures have been specially formulated to help you achieve the best from your soil by protecting and improving soil fertility and health between cash crops. Fast growing species have been chosen to help suppress growth and provide weed excellent cover producing huge quantities of organic matter and a variation of different rooting depths to ensure good soil penetration and utilisation of surplus nutrients. Bespoke mixtures to suit individual. specific requirements can also be arranged.

### **N-RICH COVER MIX**

The vetch and rye complement each other to provide an excellent cover crop mixture for the winter. Vetches are fast growing and they have a very prolonged growing season, combined with excellent winter hardiness and have the advantage of being able to fix nitrogen at lower temperatures than other legumes. Forage rye is deep rooting which provides a good underground network for the plant to scavenge most of the nitrogen left by the previous crop.

80% Forage Rve 20% Winter Vetch

100%

Sowing rate 50 - 75kg/ha Pack size 25kg & 500kg Untreated

#### **RESCUE MIX**

- 50% Buckwheat 15% Fodder Radish
- 15% White Mustard
- 10% Gold of Pleasure 10% Brassica Carinata
- 100%

#### Sowing rate 12kg/ha Pack size 10kg Untreated

### **REVIVAL COVER MIX**

Oats, white mustard and phacelia combined make a very effective catch crop. White mustard and phacelia are very fast growing and good at suppressing weeds, they are also easy to break down and incorporate into the soil because they are less frost hardy. The oats provide good ground cover further helping with weed suppression and produce a large quantity of organic matter.

90% Oats 5% White Mustard 5% Phacelia

100%

Sowing rate 30 - 50kg/ha Pack size 25kg & 500kg Untreated

### **BOOST MIX**

- 70% Brassica Carinata 10% Hybrid Brassica
- 10% Fodder Radish
- 10% Brown Mustard

Sowing rate 6kg/ha

Pack size 5kg

Untreated

100%

A mixture containing species with aggressive deep roots that will help with difficult compacted

soils and producing huge amounts of biomass. During the winter months this mixture can benefit the soil by providing vast quantities of organic matter, prevent nutrients being lost and penetrate through compacted soils.

**BUSTER COVER MIX** 

| 35% | Buckwheat       |
|-----|-----------------|
|     | Linseed         |
| 15% | Daikon Radish   |
| 12% | Crimson Clover  |
| 12% | Fodder Radish   |
| 6%  | Gold of Pleaseu |
| 5%  | Phacelia        |

eure 100%

Sowing rate 15 - 25kg/ha Pack size 25kg & 500kg Untreated

### **KWIK FIX**

Untreated

80% Fodder Radish 20% White Mustard

100% Sowing rate 12 - 15kg/ha Pack size 5kg

### **N-HANCE COVER MIX**

This mixture will benefit the soil by the use of species that absorb the leaching nutrients and has the added advantage of the useful nitrogen fixing winter vetch. It produces a huge quantity of organic matter and has the benefit of radish's large roots that can utilise nutrients from the deeper layers of soil.

| 60%         | Forage Rye    |
|-------------|---------------|
| <b>30</b> % | Winter Vetch  |
| 7%          | Fodder Radish |
| 3%          | White Mustard |
| 100%        |               |
|             |               |

Sowing rate 35 - 50kg/ha Pack size 25kg & 500kg Untreated

> Sowing rate 15 - 25kg/ha Pack size 25kg & 500kg Untreated

Growing a Cover Crop is

an effective way of erosion control

**N-RETAIN COVER MIX** 

A balanced mixture that contains

fast growing species which produce

large amounts of biomass. The

species used in the mixture offer a

wide range of rooting depths some

having a fibrous root system and

others producing long taproots.

Both types of roots help to soak up

and retain any residual nutrients

which may have been left behind by

the previous crop.

30% Spring Vetch

15% Buckwheat

15% Crimson Clover

12% Fodder Radish

10% Daikon Radish

10% Egyptian Clover

5% White Mustard

3% Phacelia

### LATE COVER MIX

100%

- 60% Forage Rape 28% Stubble Turnips
- 7% White Mustard
- 5% Fodder Radish
- 100%

Sowing rate 12 - 15kg/ha Pack size 5kg Untreated

DISCLAIMER These tables are given in good faith and intended for general guidance only. Weather, local conditions and crop rotations must always be taken into account.

# Game Cover Selector

| Crop                                     | Organic<br>Option | Page    | Pack                       | Cov<br>Feed |   | Nectar    | Average So<br>per He |                                                  | Sowing Date               | Utilisation Period    | Duration<br>of the | Average<br>Drill | Average<br>Row |     | sted Gu<br>Ded Fer<br>(kg) ha | tiliser |
|------------------------------------------|-------------------|---------|----------------------------|-------------|---|-----------|----------------------|--------------------------------------------------|---------------------------|-----------------------|--------------------|------------------|----------------|-----|-------------------------------|---------|
|                                          | 58                | No.     | Size                       |             | 2 | <b>\$</b> | Broadcast            | Drill                                            | Guide                     |                       | Crop               | Depth<br>cm      | Width<br>cm    | N   | Р                             | K       |
| Game Cover Crops                         |                   |         |                            |             |   |           |                      |                                                  |                           |                       |                    |                  |                |     |                               |         |
| Maize                                    |                   | 27      | 40,000/<br>50,000<br>seeds | 1           | 1 |           |                      | Precision drill<br>111,150 -<br>123,500 seeds/ha | April - June              | September - February  | 1 Season           | 6                | 75             | 80  | 85                            | 205     |
| Brassicas                                |                   |         |                            |             |   |           |                      |                                                  |                           |                       |                    |                  |                |     |                               |         |
| Kale                                     |                   | 28      | 1kg & 5kg                  | 1           |   |           | 5 - 7.5kg            | 3 - 5kg                                          | April - June              | September - March     | 1 - 2yr            | 1 - 2            | 50             | 100 | 50                            | 120     |
| Surefire Kale Blend                      |                   | 28      | 2kg                        | 1           |   |           | 5 - 7.5kg            | 3 - 5kg                                          | April - June              | September - March     | 1 - 2yr            | 1 - 2            | 50             | 100 | 50                            | 120     |
| Avalon Leafy Turnip                      |                   | 29      | 10kg & 25kg                | 1           |   |           | 5 - 7.5kg            | 3 - 6kg                                          | Spring / Early<br>Autumn  | Autumn / Early Winter | 1 Season           | 1 - 2            | Various        | 110 | 55                            | 55      |
| Texsel Greens                            |                   | 29      | 2kg                        | 1           |   |           | 5 - 7.5kg            | 6kg                                              | April - August            | September - January   | 1 Season           | 1 - 2            | Various        | 110 | 55                            | 55      |
| Forage Rape                              |                   | 29      | 10kg & 25kg                | 1           |   |           | 10kg                 | 6kg                                              | May - end of<br>September | July - December       | 1 Season           | 1 - 2.5          | 15 - 20        | 20  | 40                            | 40      |
| Spitfire Hybrid Brassica                 |                   | 29      | 5kg & 25kg                 | 1           |   |           | 10kg                 | 6kg                                              | May - end of<br>September | July - December       | 1 Season           | 1 - 2.5          | 15 - 20        | 20  | 40                            | 40      |
| Zoom Brassica Mixture                    |                   | 29 & 36 | 5kg                        | 1           |   |           | 6 - 10kg             | 6kg                                              | Spring / Autumn           | September - March     | 1 Season           | 1 - 2            | Various        | 110 | 55                            | 55      |
| Millets / Grasses                        |                   |         |                            |             |   |           |                      |                                                  |                           |                       |                    |                  |                |     |                               |         |
| Giant Sorghum                            |                   | 30      | 10kg                       | 1           |   |           |                      | 30kg                                             | May - June                | September - February  | 1 Season           | 2.5 - 4          | 45 - 50        | 100 | 50                            | 120     |
| Sorghum - Intermediate & Dwarf           |                   | 30      | 10kg                       | 1           |   |           |                      | 20kg                                             | May - June                | September - February  | 1 Season           | 2.5 - 4          | 45 - 50        | 100 | 50                            | 120     |
| Over n' Under Sorghum Mixture            |                   | 30      | 10kg                       | 1           |   |           |                      | 20 - 25kg                                        | May - June                | September - February  | 1 Season           | 2.5 - 4          | 45 - 50        | 100 | 50                            | 120     |
| Millets                                  |                   | 31      | 10kg                       | 1           | 1 |           | 12kg                 | 12kg                                             | April - June              | September - December  | 1 Season           | 1 - 1.5          | 35-45          | 60  | 30                            | 30      |
| Canary Grass (Phalaris aquatica)         |                   | 34      | 2.5kg                      | 1           |   |           |                      | 6kg                                              | April - June              | All Year              | 5 Years+           | 1.5              | 70 - 90        | 55  | 28                            | 28      |
| Reed Canary Grass (Phalaris arundinacea) |                   | 34      | 2.5kg                      | 1           |   |           |                      | 6kg                                              | April - June              | All Year              | 5 Years+           | 1.5              | 70 - 90        | 55  | 28                            | 28      |

| Сгор            |                        | Organic<br>Option | Page<br>No. | Pack<br>Size | Cov<br>Feed | ver /<br>Crop | Nectar | Average So<br>per He |             | Sowing Date<br>Guide       | Utilisation Period   | Duration<br>of the | Average<br>Drill<br>Dopth | Average<br>Row<br>Width | Seed | sted G<br>bed Fer<br>(kg) ha |     |
|-----------------|------------------------|-------------------|-------------|--------------|-------------|---------------|--------|----------------------|-------------|----------------------------|----------------------|--------------------|---------------------------|-------------------------|------|------------------------------|-----|
|                 |                        | 56                | NO.         | 5126         | 5           | <u>.</u>      |        | Broadcast            | Drill       | Guide                      |                      | Crop               | Depth<br>cm               | cm                      | N    | Р                            | к   |
| Game Cove       | r Crops                |                   |             |              |             |               |        |                      |             |                            |                      |                    |                           |                         |      |                              |     |
| Sunflowers      | Untreated              |                   | 32          | 10kg         | 1           | 1             | 1      |                      | 12kg        | April - June               | July - November      | 1 Season           | 4                         | 75                      |      | sure adequ<br>ut very litt   |     |
| Sumowers        | Treated                |                   | 32          | 5kg          | 1           | 1             | 1      |                      | 12kg        | April - June               | July - November      | 1 Season           | 4                         | 28                      |      | sure adequ<br>ut very litt   |     |
| Quinoa          |                        |                   | 32          | 2kg          | 1           | 1             |        | 5kg+                 | 5kg         | April - June               | September - December | 1 Season           | 1.5                       | 45                      | 100  | 50                           | 120 |
| Triticale       |                        | 1                 | 32          | 25kg         | 1           | 1             |        |                      | 125kg       | Spring / Autumn            | August - February    | 1 Season           | 2.5                       | 12 - 16                 | 125  | 0                            | 0   |
| Borage          |                        |                   | 32          | 5kg          | 1           |               | 1      | 12kg+                | 12kg        | April - June               | Autumn               | 1 Season           | 1 - 2                     | 15 - 20                 |      |                              |     |
| Gold of Pleasur | re (Camelina)          | 1                 | 33          | 5kg          | 1           | 1             |        | 12kg+                | 12kg        | April - May                | September - December | 1 Season           | 1                         | 8 - 18                  | 40   | 75                           | 65  |
| Phacelia        |                        | 1                 | 33          | 2kg & 5kg    | 1           |               | 1      | 7.5 - 10kg           |             | April - August             | July - October       | 1 Season           | 1 - 2                     | Various                 |      |                              |     |
| Buckwheat       |                        | 1                 | 33          | 10kg & 25kg  | 1           | 1             | 1      | 50kg+                | 50kg        | April - May                | August - December    | 1 Season           | 1 - 2.5                   | 20 - 35                 | 35   | 105                          | 210 |
| White Mustard   |                        | 1                 | 33          | 10kg & 25kg  | 1           |               |        | 12 - 17kg            | 6 - 12kg    | Spring - Autumn            | August - December    | 1 Season           | 1 - 2.5                   | 20 - 35                 |      |                              |     |
| Brown Mustard   | d                      |                   | 33          | 5kg          | 1           |               |        | 5 - 7.5kg            | 2.5 - 7.5kg | Spring - Autumn            | Autumn / Spring      | 1 Season           | 1 - 2.5                   | 20 - 35                 |      |                              |     |
| Fodder Radish   |                        | 1                 | 33          | 10kg & 25kg  | 1           | 1             | 1      | 8kg                  | 6kg         | Spring - Autumn            | July - December      | 1 Season           | 1 - 2.5                   | 25 - 30                 | 40   | 15                           | 20  |
| Linseed         |                        |                   | 33          | 25kg         | 1           | 1             | 1      |                      | 60kg        | April - May                | September - February | 1 Season           | 1 - 2                     | 8 - 18                  | 40   | 75                           | 65  |
| Perennial Chico | ory                    |                   | 34          | 2kg          | 1           |               | 1      | 5kg+                 | 5kg         | Spring or Early<br>Autumn  | All Year             | 5yr+               | 1                         | 15 - 20                 | 100  | 50                           | 120 |
| Yellow Blosson  | n Clover               |                   | 34          | 2kg          | 1           |               | 1      | 6kg+                 | 6kg         | April - June               | All Year             | 1 - 2yr            | 0.5                       | 75                      | 30   | 0                            | 0   |
| Game Cove       | r Mixtures             |                   |             |              |             |               |        |                      |             |                            |                      |                    |                           |                         |      |                              |     |
| Feed and Cove   | er Mixture             |                   | 10          | 25kg         | 1           | 1             | 1      |                      | 40kg        | Spring                     | September - February | 1 Season           | 1 - 2.5                   | 12 - 16                 | 30   | 75                           | 75  |
| Partridge Mixtu | ure                    |                   | 11          | 25kg         | 1           | 1             |        |                      | 62kg        | Spring                     | September - February | 1 Season           | 1 - 2.5                   | 12 - 16                 | 30   | 75                           | 75  |
| Northern Shot   |                        |                   | 11          | 20kg         | 1           | 1             | 1      |                      | 50 - 60kg   | Spring                     | September - February | 2 Season           | 1 - 2.5                   | 12 - 16                 | 75   | 40                           | 40  |
| Northern Star ( | Game Mixture           |                   | 11          | 20kg         | 1           | 1             | 1      | 50kg                 | 50kg        | Spring                     | September - February | 1 Season           | 2.5 - 3                   | 15                      | 75   | 37                           | 37  |
| Overdrive       |                        |                   | 28          | 2.5kg        | 1           | 1             |        | 6kg+                 | 6kg         | April - June               | September - February | 1 - 2yr            | 2.5                       | 45 - 50                 | 100  | 50                           | 120 |
| General Purpos  | se Rearing Pen Mixture |                   | 34          | 15kg         | 1           |               |        | 32 - 37kg            | 32kg+       | Spring / Autumn            | All Year             | 5yr+               | 1                         | 15 - 20                 |      |                              |     |
| Broadshot       |                        |                   | 35          | 10kg         | 1           | 1             | 1      | 15kg                 | 15kg        | Spring                     | September - February | 1 Season           | 1 - 2                     | 15 - 25                 | 80   | 40                           | 96  |
| Four Ten Mixtu  | ire                    |                   | 35          | 14kg         | 1           | 1             |        |                      | 35kg        | Spring                     | September - February | 1 Season           | 6                         | 75                      | 185  | 90                           | 220 |
| Sundown Mixtu   | ure                    |                   | 35          | 13kg         | 1           | 1             | 1      |                      | 32kg        | April - June               | September - February | 1 Season           | 5 - 6                     | 75 - 100                | 60   | 60                           |     |
| Traditional Gam | me Cover Mixture       |                   | 35          | 10kg         | 1           | 1             | 1      | 25kg                 | 25kg        | April - June               | September - February | 1 Season           | B/C                       | B/C                     | 80   | 40                           | 96  |
| Decoy Game M    | lixture                |                   | 35          | 10kg         | 1           | 1             | 1      | 20kg                 | 20kg        | Spring                     | September - February | 1 Season           | 1 - 2                     | 15 - 25                 | 80   | 40                           | 96  |
| Boost Mixture   |                        |                   | 19 & 36     | 5kg          | 1           |               |        | 6kg+                 | 6kg         | June - September           | September - February | 1 Season           | 1 - 2                     | 45 - 50                 | 100  | 50                           | 50  |
| Late Cover Mix  | cture                  |                   | 19 & 36     | 5kg          | 1           |               |        | 15kg+                | 12kg        | Spring / Autumn            | September - February | 1 Season           | 1 - 2                     | 20 - 35                 | 55   | 28                           | 28  |
| Kwik Fix        |                        |                   | 19 & 36     | 5kg          | 1           |               |        | 15kg+                | 12kg        | July - End of<br>September | September - December | 1 Season           | 1 - 2                     | 40                      |      | ging can o<br>excess fer     |     |
| Rescue Mixture  | е                      |                   | 19 & 36     | 10kg         | 1           | 1             |        | 12kg+                | 12kg        | June - September           | September - December | 1 Season           | 1 - 2                     | 45 - 50                 | 100  | 50                           | 50  |

# **22 Establishing Game Cover Crops**

Game cover crops will only reach their full potential if they are well managed right from the start. A successfully managed shoot is both profitable and rewarding to landowners and the local community, as it contributes positively to the countryside and the overall environment. It is hoped the following notes will help and guide you to the successful establishment of game cover crops. Any regional or particular soil conditions have not been taken into consideration as it is preferable to take advantage of local knowledge. If you would like more detailed information please contact your local seed specialist, who will be able to give advice for your own particular farm/situation.



# **CROP ROTATION**

Rotations are essential to help reduce soil-borne diseases such as club root in brassicas. A rotational system will also help to improve soil fertility and structure as each crop can benefit the soil in different ways, each requiring different trace elements. Crop rotation is essential where weeds and/ or disease have become a persistent problem.

# CULTIVATIONS

A well prepared seed bed is essential for crop health and development, as a rapidly growing game cover crop has more chance of resisting pest attack. Generally, ploughing and rapid consolidation to conserve moisture is the ideal start for these crops. Ensure the seed bed is fine and firm to help reduce the risk of slug activity.

# SOWING

Where possible we recommend drilling game cover crops. This ensures accurate seed depth and row width and will provide maximum seed to soil contact that will encourage a speedy establishment. Sowing at the correct row width will also improve bird holding and driving capability. Each growing season is completely different, but try not to sow too early to ensure the soil temperature is warm enough to encourage a quick successful germination.



# **SOIL TESTS & FERTILISER**

Soil testing is essential to determine the soil pH and fertility of the soil, which can then be managed accordingly to maximize its potential. Farmyard manure is an excellent way of improving soil structure and adding fertility. Fertiliser will also be required at the early stages of establishment to maximize the output of your game cover crop. Lime may be required for some acid soils to balance the soil pH.

# WEED CONTROL

The stale seed bed technique is a well proven weed control system and allows early control of weeds. The technique involves spraying, ploughing and cultivating to encourage weed seeds to germinate in a first flush, then re-spraying; this can be repeated as often as necessary to help achieve a clean seed bed. This technique is very useful where mixtures are grown and no herbicide can be recommended. (For chemical weed control see tables on pages 24 and 25).





# Pests & Diseases in Brassicas & Maize

### **PESTS**

# FLEA BEETLE MANAGEMENT

Brassicas (kale, rape, turnips, texsel greens, jonty) and linseed are vulnerable in hot weather conditions to attacks of flea beetle. Chemical insecticide treatment will be required immediately if 'shot holes' are seen in the young leaves. Increasing soil fertility and structure helps speed the crop through critical growth stages to minimize attack.







FRIT FIY

BEETLE



# **EYE SPOT** (Kabatiella zeae)

**RUST** (Puccinia sorghi)

**DISEASES IN MAIZE** 

**MAIZE SMUT** 

(Ustilago maydis)

**STALK ROT** (Fusarium spp)



#### **CLUB ROOT** (Plasmodiophora brassicae)

Club Root is a serious and widespread disease of brassica plants. It is very difficult to control and once present in the soil, is virtually impossible to eradicate. Roots affected by club root are swollen and distorted thus reducing the flow of water and nutrients to the plant; leaves become yellow and wilt causing severe stunting of growth. Sowing crops in the autumn when the soil is cooler reduces the risk of attack. Increasing soil pH through liming, ensuring good drainage and maintaining long rotations between brassica crops (at least four years) are the best methods to manage the disease.

See our club root tolerant species: Goldeneye Kale (page 28) Daikon Radish (page 18) Fodder Radish (page 18 & 33)





# **OTHER PESTS**

Game cover is often sown in the spring near to woods and trees and therefore is very attractive to crows, pigeons, slugs, rabbits, hares, deer, badgers and caterpillars. Game cover crops need to be checked regularly and relevant action needs to be taken quickly to prevent further attacks from these pests.

#### KEY

Considered 'crop safe' when correctly applied to healthy crop in good condition

Considered to pose a risk to crop health, use with caution

#### No information available

Rates are based on L/Ha unless otherwise stated. This is not a complete list of products which can be used on these crops. Always consult a BASIS qualified advisor.

The chart below was kindly supplied by Agrovista UK Ltd

# 24 Game Cover Chemicals

|                   | STALE<br>SEEDBED   |                     |                                  |                         |                        | PRE EME                  | RGENCE                | HERBICIE             | DES ONLY               |                                |                        |                        |                         |                      |                     |                          |           |                       |                      |                        | PO                          | IST EMERG                        | ENCE HER            | BICIDES               |                        |                               |                   |                                 |                         |                         |                       |                          |
|-------------------|--------------------|---------------------|----------------------------------|-------------------------|------------------------|--------------------------|-----------------------|----------------------|------------------------|--------------------------------|------------------------|------------------------|-------------------------|----------------------|---------------------|--------------------------|-----------|-----------------------|----------------------|------------------------|-----------------------------|----------------------------------|---------------------|-----------------------|------------------------|-------------------------------|-------------------|---------------------------------|-------------------------|-------------------------|-----------------------|--------------------------|
|                   | ROUNDUP VISTA PLUS | ANTHEM (MAPP 15761) | Centium 360CS (MAPP 17327/18719) | CIRRUS CS (MAPPP 18721) | SPINNAKER (MAPP 18855) | GANIT 36 CS (MAPP 18718) | CALLISTO (MAPP 12323) | CRYSTAL (MAPP 13914) | HURRICANE (MAPP 16027) | KERB FLO 2.1 L/HA (MAPP 13716) | BUTISAN S (MAPP 16959) | SPRINGBOK (MAPP 16786) | STOMP AQUA (MAPP 14664) | ALAS SX (MAPP 18602) | ANTHEM (MAPP 15761) | BASAGRAN SG (MAPP 08360) | BUTISAN S | CALLISTO (MAPP 12323) | Crystal (Mapp 13914) | SPINNAKER (MAPP 18855) | dow Shield 400 (MAPP 14984) | EAGLE (MAPP 16490 or MAPP 18902) | FALCON (MAPP 16459) | HILOAD MIRCAM (11930) | HURRICANE (MAPP 16027) | KERB FLO 2.1L/HA (MAPP 13716) | PEAK (MAPP 15521) | STARANE HI-LOAD HL (MAPP 16557) | STARANE XL (MAPP 10921) | STOMP AQUA (MAPP 14664) | THISTLEX (MAPP 16123) | VIVENDI 200 (MAPP 16966) |
| Borage            | YES                | NO                  | YES                              | YES                     |                        | YES                      |                       | NO                   |                        |                                | YES                    |                        | NO                      |                      | NO                  | NO                       | YES       |                       | NO                   |                        | YES                         | YES                              |                     | NO                    |                        |                               | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Buckwheat         | YES                | NO                  |                                  |                         |                        |                          |                       | 2.0 L/HA             |                        | 1.7 L/HA                       |                        | YES                    |                         | 6G                   | NO                  | NO                       | YES       |                       | 2.0 L/HA             |                        | YES                         | YES                              |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Canary Grass      | YES                | YES                 |                                  |                         |                        |                          |                       | YES                  |                        |                                | NO                     |                        |                         | 20G FROM 3 LF        |                     | YES                      | NO        |                       | 2.0 L/HA             |                        | YES                         | YES                              | YES                 | YES                   |                        |                               | NO                | YES                             | YES                     | 2.9 L/HA                | YES                   | YES                      |
| Chicory           |                    |                     | YES                              | YES                     |                        | YES                      |                       |                      |                        |                                |                        |                        |                         | NO                   |                     | NO                       | YES       |                       | YES                  |                        | NO                          | YES                              |                     | NO                    |                        |                               | NO                | NO                              | NO                      | 2.2 L/HA                |                       | NO                       |
| Fodder Radish     | YES                | NO                  | YES                              | YES                     |                        | YES                      |                       | NO                   |                        | 1.7 L/HA                       |                        |                        | NO                      | NO                   | NO                  | NO                       | YES       |                       | NO                   |                        | YES                         | NO                               |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | NO                    | YES                      |
| Gold of Pleasure  | YES                |                     |                                  |                         |                        |                          |                       | 2.0 L/HA             |                        | 1.7 L/HA                       | YES                    | YES                    |                         | NO                   |                     | NO                       | YES       |                       | YES                  |                        | YES                         | NO                               |                     | NO                    |                        | YES                           |                   | NO                              | NO                      | YES                     | NO                    | YES                      |
| Kale              | YES                | NO                  | YES                              | YES                     |                        | YES                      |                       |                      |                        | 1.7 L/HA                       | YES                    | YES                    | NO                      | NO                   | NO                  | NO                       | YES       |                       | NO                   |                        | YES                         | NO                               | YES                 | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Linseed           | YES                | YES                 | NO                               | NO                      |                        | NO                       |                       |                      |                        |                                |                        | YES                    |                         | YES                  |                     | YES                      | YES       | NO                    | NO                   |                        | YES                         | YES                              | YES                 | NO                    |                        |                               | YES               | NO                              | NO                      | 2.2 L/HA                |                       | YES                      |
| Maize             | YES                | YES                 | YES                              | YES                     |                        | YES                      | YES                   |                      | YES                    |                                | NO                     | NO                     | YES                     | 6G                   | YES                 | YES                      | NO        | YES                   |                      |                        | YES                         | YES                              | NO                  | YES                   |                        | NO                            | YES               | YES                             | YES                     | YES                     | YES                   | YES                      |
| Red Millet        | YES                |                     |                                  |                         |                        |                          | NO                    |                      |                        |                                | YES                    |                        | MAX 2.2                 |                      | 2.9 L/HA            | YES                      | YES       | NO                    | YES                  |                        | YES                         | YES                              |                     | YES                   |                        |                               | YES               | NO                              | YES                     | 2.9 L/HA                | YES                   | YES                      |
| Reed Millet       | YES                |                     |                                  |                         |                        |                          | NO                    |                      |                        | YES                            |                        |                        | NO                      |                      |                     | YES                      |           | NO                    |                      |                        | YES                         | YES                              |                     | YES                   |                        |                               |                   | NO                              | YES                     |                         | YES                   | YES                      |
| Ambush Millet Mix | YES                |                     |                                  |                         |                        |                          | NO                    |                      |                        | 1.7 L/HA                       | YES                    |                        | MAX 3.3                 | 20G/HA 3LF +         |                     | YES                      |           | NO                    |                      |                        | YES                         | YES                              | NO                  | YES                   |                        |                               | YES               | NO                              | YES                     |                         | !                     | YES                      |
| White Millet      | YES                |                     | YES                              | YES                     |                        | YES                      | NO                    |                      |                        | YES                            | YES                    |                        | YES                     | 20G/HA 3LF+          | 3.3 L/HA            | YES                      | YES       | NO                    | YES                  |                        | YES                         | YES                              | NO                  | YES                   |                        |                               | YES               | YES                             | YES                     | 3.3 L/HA                | YES                   | YES                      |
| Mustard           | YES                |                     | NO                               | NO                      |                        | NO                       |                       | YES                  |                        | 1.7 L/HA                       | YES                    |                        |                         | NO                   | NO                  | NO                       | YES       |                       | NO                   |                        | YES                         | NO                               |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Phacelia          | YES                | NO                  | YES                              | YES                     |                        | YES                      |                       | NO                   |                        |                                | NO                     |                        | NO                      |                      | NO                  | NO                       | YES       |                       | NO                   |                        | YES                         | YES                              |                     | NO                    |                        |                               | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Quinoa            | YES                | NO                  | NO                               | NO                      |                        | NO                       |                       | NO                   |                        | 1.7 L/HA                       | YES                    | NO                     | NO                      | 6G FROM 3LF          | NO                  | NO                       | NO        |                       | NO                   |                        | YES                         | NO                               |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | NO                    | YES                      |
| Sorghum           | YES                |                     | YES                              | YES                     |                        | YES                      |                       | YES                  |                        | YES                            | NO                     | NO                     |                         | 6G                   |                     | NO                       | YES       |                       | YES                  |                        | YES                         | YES                              |                     | YES                   |                        |                               | YES               | YES                             | NO                      | 3.3 L/HA                | YES                   | YES                      |
| Stubble Turnip    | YES                | NO                  | NO                               | NO                      | NO                     | NO                       | NO                    |                      |                        | 1.7 L/HA                       | YES                    |                        | NO                      | NO                   | NO                  | NO                       | YES       |                       |                      | NO                     | YES                         | NO                               | YES                 | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | YES                   | YES                      |
| Sunflower         | YES                | YES                 | YES                              | YES                     |                        | YES                      | NO                    |                      |                        | 1.7 L/HA                       |                        |                        |                         | NO                   |                     | NO                       | NO        |                       | NO                   |                        | NO                          | NO                               | YES                 | NO                    |                        | YES                           | NO                | NO                              | NO                      |                         | NO                    | NO                       |
| Sweet Clover      | YES                |                     | YES                              | YES                     |                        | YES                      |                       | 2.0 L/HA             |                        | 1.7 L/HA                       | YES                    |                        |                         | NO                   |                     | NO                       | YES       |                       | 2.0 L/HA             |                        |                             | YES                              |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | 2.2 L/HA                |                       |                          |
| Texsel Greens     | YES                |                     |                                  |                         |                        |                          | NO                    | YES                  |                        |                                |                        |                        |                         | NO                   | NO                  | NO                       | YES       |                       | 2.0 L/HA             |                        | YES                         | NO                               |                     | NO                    |                        | YES                           | NO                | NO                              | NO                      | NO                      | NO                    | YES                      |
| Triticale         | YES                | YES                 | YES                              | YES                     | YES                    | YES                      | NO                    | YES                  | YES                    | NO                             | NO                     | YES                    | YES                     | YES                  | YES                 |                          |           |                       | YES                  | YES                    | YES                         | YES                              | NO                  | YES                   | YES                    | NO                            | YES               | YES                             | YES                     | YES                     | YES                   | YES                      |

DISCLAIMER: In some cases information is based on limited data so should be used with caution. EAMUs (formerly SOLAs) and LTAEU off-label uses are at Growers Own Risk. Dow Shield, Thistlex & Vivendi contain Clopyralid which can remain in plant residues and affect following crops - ensure full incorporation of crop residues before planting treated areas with susceptible crops. When used on game cover crops the seed or any part of the treated plants must not be used for human or animal food or feed (except game birds).

Agrovista & DLF cannot accept any responsibility for any loss, damage or accident arising from the use of information in this report. Always read the label and the associated EAMU document prior to any application. Products are used entirely at the growers own risk.

| THE REAL PROPERTY AND ADDRESS OF CAUSE AND | and the second | A CONTRACTOR OF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                            | The ch         | uantity indicates effective<br>nart below was kindly supp<br>ased on trials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COLOR COLOR                                |                | Susceptible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                            |                | Moderately susceptible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                            |                | Moderately resistant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                            |                | Resistant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                            | ** a           | ₽1.5I/ha<br>t full rate<br>ontrol can be variable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|                                            |                | Concerning the second se |

e application rate plied by Agrovista UK Ltd

# Maize Herbicides

| Herbicide        | Crop Timing                                        | a.ig/l or kg                                                 | Dose rate litre/ha | Grain Maize       | Forane Maize | Volunteer Potato | Volunteer OSR | Thistle Creeping | Stinking Mayweed | Sow Thistles | Shepherd's Purse | Scentless Mayweed | Scented Manmood | Small Nettle | Redshank | Red Dead Nettle | Pineappleweed | Pennycress | Parsley Piert | Pale Persicaria | Orache | Knotgrass | Ivy-leaved Speedwell | Groundsel | Fumitory | Forget-me-not | Fool's Parsley | Field Pansy | Fat Hen<br>Eiold Bindwood | Dock          | Creeping Buttercup | Corn Marigold | Crane's Bill | Common Ponny | C. Field Speedwell | C.Chickweed | Cleavers          | Charlock | Bugloss  | Black Nightshade | Annual Mercury | Amaranthus | Wild Oats | Volunteer Cereals | Sorghum  | Ryegrass        | Millet | gr/Digitaria | Couch<br>Crah/Hairy Finner | Barnyard Grass/<br>Cockspur | Blackgrass | RSMG | Annual Meadow Grass |
|------------------|----------------------------------------------------|--------------------------------------------------------------|--------------------|-------------------|--------------|------------------|---------------|------------------|------------------|--------------|------------------|-------------------|-----------------|--------------|----------|-----------------|---------------|------------|---------------|-----------------|--------|-----------|----------------------|-----------|----------|---------------|----------------|-------------|---------------------------|---------------|--------------------|---------------|--------------|--------------|--------------------|-------------|-------------------|----------|----------|------------------|----------------|------------|-----------|-------------------|----------|-----------------|--------|--------------|----------------------------|-----------------------------|------------|------|---------------------|
| Pendimethalin    | Pre-emergence<br>up to 4 leaves                    | Most Micro 365g/l<br>Anthem 400g/l<br>Stomp Aqua 455g/l      | 3.3                | STOMP &<br>ANTHEM | YES ALL      |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Wing-P           | Pre-emergence<br>up to 4 leaves                    | Dimethenamid-p<br>212.5g/l +<br>Pendimethalin 250g/l         | 4.0                | YES               | YES          |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               | key benefit  |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Dual Gold        | Pre-emergence                                      | S-metolachlor<br>960g/l                                      | 1.4                | YES               | YES          |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Callisto         | Post emergence<br>2-8lvs                           | Mesotrione 100g/l                                            | 1.5                | YES               | YES          |                  | 6-LF          | *                | *                |              |                  |                   |                 | •            |          |                 | *             | *          |               |                 |        | *         |                      |           |          |               |                | 6-LF        |                           | *             |                    |               |              |              |                    |             | * 6 - 8<br>whorls |          | * 4-6 LF | ,                | • *            | 6-8 LF     |           |                   |          |                 | *      | *            | Г                          | * GS21                      |            |      | *                   |
| Dow Shield 400   | Up to and incl. 9 lvs                              | Clopyralid 400g/l                                            | 0.25               | NO                | YES          |                  |               | 4-LV<br>seeding  |                  | 2-LF         | 1                | 4-LF              |                 |              | 냔        |                 | 4-LF          |            | 분             | 1-LF            |        |           |                      |           |          |               |                |             |                           |               |                    | 2-LF          |              |              |                    |             |                   |          |          | Ę                | 1              |            |           |                   |          |                 |        |              |                            | П                           |            |      | ٦                   |
| Elumis           | Post emergence<br>2-8lvs                           | Mesotrione 75g/l +<br>Nicosulfuron 30g/l                     | 1.5                | YES               | YES          |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           | MS            |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   | 2-LF     |                 | 4-0 G  |              | *                          |                             |            |      |                     |
| Entail           | Post emergence<br>2-8lvs                           | Nicosulfuron 240g/l                                          | 0.17               | YES               | XES 4        |                  |               |                  | *                |              |                  | *                 |                 |              | *        |                 | *             |            | *             | *               | *      | *         |                      | *         |          |               |                | * *         | • •                       |               |                    |               |              | *            | *                  |             |                   |          |          |                  |                |            |           |                   | 2-LF     | 1700            | 2-LF   |              | 4-6 LF                     |                             |            |      | 2-LF                |
| Gal Gone         | Post emergence<br>3-6lvs<br>before 20cm & buttress | Fluroxypyr 200g/l                                            | 1.0                | NO                | YES          |                  |               | Π                |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Gyo              | 2-8lvs                                             | Pyrdate 600g/l                                               | 0.75               | YES               | YES          |                  |               |                  |                  |              |                  | SW                | ме              |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Leystar          | Post emergence<br>3-6lvs<br>10 Apr - 31 May        | Fluroxypyr 100g/l<br>Clopyralid + 80g/l<br>Florasulam 2.5g/l | 1.0                | NO                | YES          |                  | 1true If      |                  |                  |              | **               | *                 |                 | : :          | *        | *               | ***           |            | *             | *               | \$     | ***       | * *                  | • ‡       | *        | ***           | ***            |             | *                         |               | ***                | ***           |              | ŧ            | *                  | ***         | ***               | ***      |          | *                | ŧ              |            |           |                   |          |                 |        |              |                            | Π                           |            |      | 1                   |
| Maister + Mero # | Post emergence<br>2-6lvs                           | foramsulfuron 300g +<br>iodosulfuron 100g/kg                 | 150g<br>+<br>11/ha | YES               | YES          |                  | 6-LF          | 4-LF<br>seeding  | upto<br>6-LF     | 0-5          | ði dñ            | 6 <u>-</u> LF     | upito           | 4-LF         | 4-5      | 4-LF            |               |            | 4-LF          | 4-LF            | 2-LF   | 6-pto     |                      | 4-LF      | 2-LF     |               |                | 4-LF        | 8-LF                      | 2-LF          |                    |               | 4-LF         |              | 2-LF               | 5cm         | 2<br>whorts       | 4-LF     | ***      | up to 8-LF       | 2<br>          |            | 4-LF      | 4-LF              | occurry. | 4-LF<br>seeding | ţ      |              | up to<br>15cm              | 3-LF                        | 4-LF       | ncen | of an               |
| Peak*            | Post emergence<br>2-10lvs                          | Prosulfuron 750g/kg                                          |                    | YES               |              |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           | seed-<br>ling |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |
| Titus*           | Before 4 collar                                    | Rimsulfuron 25%                                              | 50g                | NO                | YES check    |                  |               |                  |                  |              |                  |                   |                 |              |          |                 |               |            |               |                 |        |           |                      |           |          |               |                |             |                           |               |                    |               |              |              |                    |             |                   |          |          |                  |                |            |           |                   |          |                 |        |              |                            |                             |            |      |                     |



**DLF** have been strong players in the forage maize market for many years. Our expertise in the grass seed market complements the maize portfolio when discussing total forage needs with our customers.

We are not breeders of maize so we work with breeders, which can have a distinct advantage when securing a well-rounded portfolio to suit all maize requirements.

The biogas sector for maize is growing and our varieties for this sector have performed extremely well this season and we already have some repeat orders for next season (BIOGAS page 15).

Comprehensive technical sheets are available for all forage maize varieties available from DLF.

### ULTRA EARLY

# EMMERSON

- · Setting new standards for ultra early maize
- BSPB/NIAB Descriptive List 2021 for both Favourable and Less Favourable Sites
- Suitable for anaerobic digestion
- Ultra early short-season hybrid for earlier harvest or later sowing options



# PEREZ

- Gain higher yields faster!
- BSPB/NIAB Descriptive List 2020 for both Favourable and Less Favourable Sites
- Proven consistent performance
- Suitable for anaerobic digestion

# **EARLY MAINCROP**

# MARCAMO

- BSPN/NIAB Descriptive List for both Favourable and Very Favourable Sites
- Fills the clamp!
- Very high yields of dry matter and energy
- Suitable for anaerobic digestion



Individual technical sheets available for each variety.

These can be found at www.dlf.co.uk/maize-and-arable.aspx







**CROP** 

COVER

GAME

# **Game Maize**

**Game Maize** is still one of the most popular crops used for cover and feed. Nearly all maize varieties used for game cover have at some stage been commercial forage or grain varieties. As these varieties are superseded by newer hybrids, stocks of those being replaced diminish and we carefully select the most suitable of these for our game cover purposes.



**N.B.** Height of maize may vary depending on seasonal and management variations. The later the sowing date the later the maturity of the maize.

# RAPID FIRE

Rapid Fire is still our biggest selling brand of maize. Varieties are selected for their good standing ability, early vigour and a low cob carriage.

Pack size 50,000 seeds Treatment Fungicide & Bird Repellent treated\*



# MAIZE BLEND

Maize Blend is a mixture of varieties with varying maturity. This will give differing rates of maturity as cobs ripen at different times, thus providing cover throughout the whole of the shooting season.

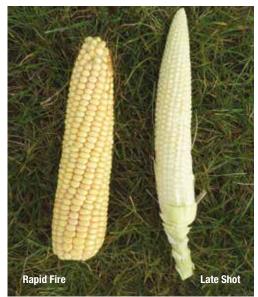
Pack size 50,000 seeds Treatment Fungicide & Bird Repellent treated\*



# LATE SHOT

Late Shot is selected for very late maturity and good standing ability. It produces an immature cob that only develops to the 'bright white' stage under normal UK autumn and winter conditions. Due to the late cob formation it tends to be of less interest to rats and badgers that can decimate more mature cobbed varieties through the shooting season.

Pack size 50,000 seeds Treatment Fungicide & Bird Repellent treated\*



\* Seed treatment may change subject to availability at time of order.



# Kale is still one of the most popular cover crops used today. The main advantage of kale is that it will provide cover for the whole shooting season. Pheasants particularly like the combination of a good canopy and bare ground which allows easy movement in a relatively dry environment.

Kale requires soil with a pH of around 6.5, so it is very important to conduct soil analysis prior to sowing. Kale is a very hungry crop and benefits from the application of farmyard manure/slurry prior to sowing. Care should be taken with continuous kale as the ground can become "brassica sick": club root (finger and toe) will inhibit or prevent the growth of brassica crops but this can be prevented by growing kale and another crop such as maize in adjacent strips and alternating the strips.

Kale is frequently grown in conjunction with other crops such as guinoa and yellow blossom clover. Selection of any such mixture should take into account the required length of time for which the crop is grown and the potential weed control that may be required.

Flea beetle damage may occur in the early stages of establishment, regular monitoring of the crop is required as action may be needed in the event of heavy attack.

#### **GOLDENEYE KALE Club Root Tolerant**

Goldeneye is a giant type kale especially bred for the game cover market, selected for the optimum combination of height and leaf production. It has a leafy top, strong stem, good winter hardiness and good field tolerance of disease, making it the ideal choice for game cover usage. Goldeneye achieved a higher vigour score than Caledonian kale and better club root tolerance in a trial conducted at the Scottish Agricultural College in Aberdeen.

Sowing rate 3 - 7.5kg/ha Pack size 1kg & 5kg **Treatment Untreated** 

# **CORSA**

A high yielding, winter hardy giant kale variety with good aphid tolerance. Corsa has been shown to maintain a higher leaf percentage and stem quality than other traditional giant kales. Its soft stem, compared with other giant type kales, increases palatability and stock utilisation resulting in the improved performance of both sheep and cattle. Corsa delivers a high volume of high quality forage throughout the season.

Sowing rate 3 - 7.5kg/ha Pack size 1kg & 5kg Treatment Untreated

#### Club Root Tolerant

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A very tall variety with good winter hardiness. Grüner Angeliter is proving to be a significant improvement in the game cover sector and has performed extremely well even in difficult growing conditions. It has a high leaf canopy and a thick strong stem with a branching, umbrella-shaped canopy giving plenty of space for the birds to move about underneath.

Sowing rate 3 - 7.5kg/ha Pack size 1kg & 5kg **Treatment Untreated** 

**GRÜNER ANGELITER** 





Anglian Gold is a low growing kale variety tailored to the game cover sector. Its dense, leaf-rich canopy, combined with good winter hardiness, makes it an option for providing plenty of cover throughout the season.

Sowing rate 3 - 7.5kg/ha Pack size 1kg & 5kg **Treatment Untreated** 

#### SUREFIRE KALE BLEND

A combination of three excellent game cover kale varieties. to provide a tall varied canopy. This blend will give superb cover over an extended period and will give second year growth with various bolting times. The flowering kale attracts insects and provides shed seed, all helping to draw both game and song birds.

40% Goldeneve 30% Grüner Angeliter 30% Corsa 100%

Sowing rate 3 - 7.5kg/ha Pack size 2kg **Treatment Untreated** 





A superb combination of winter hardy cover provided by the kale and high quality feed provided by the quinoa. This mixture is excellent for holding birds.

50% Quinoa 50% Goldeneye Kale

100%

Sowing rate 6kg/ha Pack size 2.5kg **Treatment Untreated** 

# **Brassicas**

### **ZOOM BRASSICA MIXTURE**

Zoom is a blend of Winfred hybrid brassica and forage rape. This is a very vigorous and quick growing mixture which is ideal for replacing failed crops or patching spring sown crops. Good seedling vigour gives a reliable establishment of a high leaf to stem ratio crop using carefully selected varieties with good disease and bolting resistance.

Sowing rate 6 – 10kg/ha Pack size 5kg Treatment Untreated

# FORAGE RAPE

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Forage Rape is particularly useful in that it can be used as a rescue or catch crop, continuing until the New Year when it flowers and goes to seed. A well grown crop with adequate spacing between rows will provide good cover for holding, driving and feeding. It is largely unaffected by frost and wet weather.

Sowing rate 6 - 10kg/ha Pack size 10kg & 25kg Treatment Untreated

# SPITFIRE HYBRID Forage Brassica

Spitfire is a modern hybrid rape created by crossing rape with kale and is a good companion to use with other fast establishing brassicas. It is a rapid growing brassica that can be used as a rescue or catch crop that will provide good cover for holding, driving and feeding game birds. It is a medium-tall variety with excellent aphid tolerance and rapid establishment to maturity.

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Sowing rate 6 - 10kg/ha Pack size 5kg and 25kg Treatment Untreated

#### TEXSEL GREENS (Brassica carinata)

Texsel Greens are a fast growing, shiny leaved brassica developed from Ethiopian mustard. They are easy to establish and provide frost hardy cover, producing a broken canopy which is great for flushing birds. Their rapid growth is ideal for suppressing weeds and they are often used as a patching crop when spring crops have failed. Also see Boost mixture on pages 19 & 36.

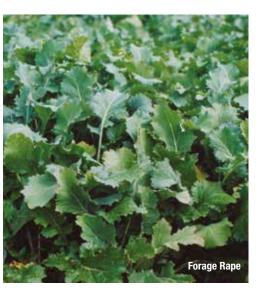
Sowing rate 5 - 7.5kg/ha Pack size 2kg Treatment Untreated

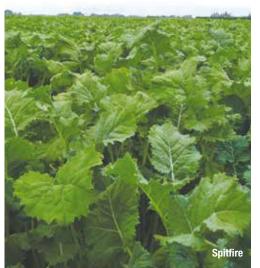


Avalon is a very leafy turnip that is late flowering, covers the soil very fast and is winter hardy. This variety can be sown in spring or autumn and for forage production these leafy turnips can be grazed after just 6-8 weeks. Avalon also has a very high dry matter yield and excellent resistance to Alternaria.

Sowing rate 5 - 7.5kg/ha Pack size 10kg & 25kg Treatment Untreated









# **30** Sorghums

**Sorghum** is a semi-tropical, non-cob producing, maize-like plant which will provide cover throughout the shooting season. It thrives best in warm, sunny growing conditions and therefore is suited to the more southerly regions of the UK. Sorghum is a very slow establishing plant that does not begin to flourish until late July.



# **DWARF SORGHUM**

Dwarf Sorghum has a short, sturdy, broad-leaved stem and a substantial seed-head, providing birds with warm cover throughout the shooting season. Often sown as a companion to maize with the bulkier, shorter sorghum plants giving protection to the birds below the taller growing maize plants (see Four Ten on p35).

Average height 1 - 1.25m under favourable conditions.

Sowing rate 20kg/ha Pack size 10kg Treatment Untreated

### INTERMEDIATE SORGHUM

Intermediate Sorghum is useful as a windbreak around other game cover crops, providing pheasant and partridge with protection from overhead predators. Earlier sown crops have the potential to produce large attractive seed-head with excellent standing ability.

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Average height up 1.25m under favourable conditions.

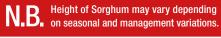
Sowing rate 20kg/ha Pack size 10kg Treatment Untreated

# GIANT SORGHUM

Giant Sorghum is a sorghum x sudan grass hybrid standing approximately 2 metres tall and therefore is extremely useful as a windbreak to protect more vulnerable crops. Its deep rooting system enables it to withstand drought conditions. Useful as a flushing crop even though it is prone to lodging later in the season.

Sowing rate 30kg/ha Pack size 10kg Treatment Untreated (Not available for 2021)







#### OVER N' UNDER SORGHUM MIXTURE

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A combination of two types of sorghum. The shorter sorghum gives the birds cover and protection from predators whilst the crop's excellent standing ability acts as an effective windbreak.

90% Dwarf Sorghum 10% Piper Sorghum Sudangrass 100%

Sowing rate 20 - 25kg/ha Pack size 10kg Treatment Untreated



### WHITE MILLET

White Millet is best suited to more southerly regions of the UK as it is a sunshine loving plant and is not frost hardy. It provides warmth, shelter and feed for game birds and will attract wild seed-eating birds such as finches. White millet is particularly attractive to grey and red-legged partridges and if sown alone can be used for early holding cover. When required to last longer into the season it performs well if sown with maize, but will combine well with a variety of other game cover crops.

Sowing rate 12kg/ha Pack size 10kg Treatment Untreated



# 🚰 🚨 🛛 RED MILLET

Red Millet is earlier maturing than white and does not stand well when sown alone. However it is a good partner to use with white millet as it extends the feeding period (see Millgame Millet Mix). As with other millets, it is susceptible to frost.

Sowing rate 12kg/ha Pack size 10kg Treatment Untreated

# JAPANESE REED MILLET

Japanese Reed Millet is a stronger plant than other members of the millet family and is more winter hardy. When mixed with white and red millet it provides an excellent cover and feed crop (see Ambush Millet Mix).

Sowing rate 12kg/ha Pack size 10kg Treatment Untreated



# AMBUSH MILLET MIX

Ambush Millet Mix is a combination of white, red and Japanese reed millet. The reed millet being a stronger plant and more winter hardy provides cover while the white and red millet produces plentiful seed to hold the birds in the cover. It is an ideal mixture for use as a wind-proof belt on the outside of a block of maize or as a flushing point at the end of maize.

40% White Millet 40% Red Millet 20% Japanese Reed Millet 100% Sowing rate 12kg/ha Pack size 10kg

Treatment Untreated

### MILLGAME MILLET MIX

with maize creates an excellent cover and feed crop.

Millgame Millet Mix uses both red and white millet and is useful as the red matures earlier than the white, therefore extending the feeding period. This mixture can produce huge amounts of high protein feed per acre and when combined

 50%
 Red Millet

 50%
 White Millet

 100%
 Sowing rate 12kg/ha

Pack size 10kg Treatment Untreated



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# **Game Cover Crops**

**Sunflowers** are a colourful sight and are of huge benefit to wildlife. Sunflowers provide highly nutritious seed of a high oil content which is loved by all game and song birds and the nectar is of great importance to bees and other insects.

In most situations sunflowers are grown in conjunction with many other game crops such as game maize or kale, either in mixtures or in adjacent blocks. The young seedlings are very vulnerable to spring slug attack and to wireworm in ground that has previously been in grass, so a close eye must be kept on the newly planted crop. Cambridge rolling following drilling into a good seed bed will help to protect against rook damage.

# SUNFLOWER

Hybrid variety with good standing ability. Large attractive flowers, with high yield potential. Best 'swiped down' to enable game birds to reach the nutritious seeds. Can be drilled with Maize to brighten up your crop.

Sowing rate 12kg/ha Pack size 10kg Untreated 5kg Fungicide treated



# 🚨 | TRITICALE

A wheat/rye hybrid cereal providing good cover and feed in marginal low fertility areas where it will thrive with little input. Useful in situations where maize and millet are not options and where brassica sickness is a problem. Further important advantages are its ability to withstand rabbit attack, winter hardiness and good disease resistance. When sowing in the spring, a true spring type must be used which does not require a period of vernalisation, otherwise the plant will not produce grain.

Sowing rate 125kg/ha Pack size 25kg & 500kg Treatment Untreated Organic seed available in 25kg packs (Limited)

# BORAGE

Borage, also known as starflower, is a quick growing annual herb, to a height of 2-3 feet with bright blue flowers; there is also a white flowered variation. The crop was traditionally grown for culinary and medicinal uses, although the crop is commercially grown today for its oil content. Borage's star shaped flower attracts bees all summer long. Borage is a self seeding plant and likely to reseed itself for many years to come.

Sowing rate 12kg/ha Pack size 5kg Treatment Untreated



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# QUINOA

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Quinoa is capable of producing a plentiful amount of seed and therefore is a popular choice of crop for holding partridge and pheasant. Many species of seed-eating song-birds are also attracted to the crop. Commonly grown with kale, quinoa provides cover and feed until it begins to collapse in the first frosts with the kale providing more permanent cover.

Sowing rate 5kg/ha Pack size 2kg Treatment Untreated

# Game Cover Crops

### PHACELIA

A prolific seeder, very fast to establish and a good weed suppressant. It produces a mass of sweet smelling purple flowers providing a good source of nectar, beneficial to a large variety of insects. It is not winter hardy and therefore for game cover it is best sown as part of a mixture. Phacelia is likely to set seed and reseed itself for many years to come.

Sowing rate 7.5 - 10kg/ha Pack size 2kg, 5kg & 10kg Treatment Untreated Organic seed available in 25kg packs (Limited)

#### BUCKWHEAT

A rapidly growing short term crop highly attractive to pheasants, partridge and deer both as cover and feed. The large amount of nectar produced attracts bees and other beneficial insects which in turn provide added interest for game birds. It is a useful component to add to mixtures due to its bulkiness and its ability to continue to provide holding cover and feed after the first frosts when the crop has fallen. Buckwheat thrives in sunny rather than shaded areas.

Sowing rate 50kg/ha Pack size 10kg & 25kg Treatment Untreated Organic seed available in 25kg packs (Limited)

# BROWN MUSTARD

A fast growing cover crop easy to establish 50 - 70 day crop that can be sown between April and September. Unlike white mustard, it is winter hardy. It will improve the health of the soil by increasing organic matter and acts as an excellent weed suppressant. It is also especially useful as over-wintering green cover after maize, potatoes and sugar beet crops, reducing soil erosion, fertiliser leaching and water run-off.

Sowing rate 5 - 7.5kg/ha Pack size 5kg & 25kg Treatment Untreated

# WHITE MUSTARD

A relatively inexpensive and highly versatile cover crop either sown alone or as a companion to other species. It is ideal for early cover and although killed off by frost, the fallen woody stems will create shelter for the birds below. This is especially useful when sown with seed producing species which alone would provide no cover. Popular as a green manure crop (see green manure section page 16 - 19).

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Sowing rate 6 - 17kg/ha Pack size 10kg & 25kg Treatment Untreated Organic seed available in 25kg packs

#### FODDER RADISH (Oil Radish)

A fast growing cover crop, its prime usefulness being where brassica sickness is a problem due to its immunity to the disease. Other qualities are its speed of establishment which aids weed suppression and its use as a green manure crop. It is useful as a catch crop in northern regions if sown in July as it will be ready to provide cover within six to eight weeks, just as birds are losing cover from the cereals being combined. Due to its fast growth it is valuable as a replacement for failed crops, and will continue to provide cover right through the season. In addition, it holds its seed in pods which shed in late winter/early spring, thus providing feed during that all important 'hungry gap'.

Sowing rate 6 - 8kg/ha Pack size 10kg & 25kg Treatment Untreated Organic seed available in 25kg packs (Limited)



# LINSEED

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Traditionally grown for its oil, linseed has become popular in recent years as game cover and is particularly attractive to partridge. It is an easy to grow crop and is tolerant of many soil types, performing well on thinner soils e.g. Cotswold Brash. Although not frost hardy it will continue to provide cover and interest well into the winter especially if sown as part of a mixture. It is also another option where brassica sickness has been a problem.

Sowing rate 60kg/ha Pack size 25kg Treatment Untreated

# GOLD OF PLEASURE - CAMELINA



Another crop well suited to poorer and nutrient deficient soils. It is a fast maturing, free-branching plant producing a seed very attractive to birds, especially partridge. A useful mixture for exposed areas is produced by combining gold of pleasure with triticale, barley and linseed (see Partridge mix page 7).

Sowing rate 12kg/ha Pack size 5kg Treatment Untreated Organic seed available in 25kg packs (Limited)

# **Game Cover Crops**

# LONGER TERM CROPS

Perennial game cover crops provide valuable year round habitat for game and farmland wildlife. They help reduce workload during busy periods and reduce establishment costs.



#### **CANARY GRASS** (Phalaris aquatica)

Canary Grass provides excellent medium to long term nesting cover for pheasant and partridge and can be used to both hold and drive birds. It is useful in areas where annual planting is not an option, either because it is uneconomic or too difficult and is a good choice to use between tree rows in newly established woods. Care must be taken to drill in wide enough rows to prevent the canary grass becoming too dense and therefore impassable for the birds. Annual management should be undertaken to keep the rows clear and topping is beneficial if the grass becomes too tall, with the debris being removed.

Sowing rate 6kg/ha Pack size 2.5kg Treatment Untreated (Limited)

#### REED CANARY GRASS (Phalaris arundinacea)

Reed Canary Grass is similar to Phalaris aquatica but is more suitable for use in exposed northern regions as it is a much hardier plant and will tolerate a wide range of soil types. It not only offers nesting and cover to pheasants but also provides wild birds with nesting sites. The crop is purely for cover and does not provide feed so bare patches may be left unplanted or later cut out to provide areas for artificial feeding. As with Phalaris aquatica drilling in wide rows is necessary rather than broadcasting or the crop will become too dense. Annual management should be undertaken to keep the rows clear. Topping is beneficial if it becomes too tall, with the debris removed.

Sowing rate 6kg/ha Pack size 2.5kg Treatment Untreated

# GENERAL PURPOSE REARING PEN MIX

25% Amenity Perennial Ryegrass 23% Late Perennial Ryegrass (Diploid) 20% Creeping Red Fescue 15% Timothy 7% Meadow Fescue 5% Birdsfoot Trefoil 5% White Clover 100%

Sowing rate 32 - 37kg/ha Pack size 15kg

# YELLOW BLOSSOM CLOVER 🖹 🕅

A biennial plant which can persist for several years due to its self-regenerating properties. Owing to its sweet smell and copious production of nectar it is highly attractive to insects, which in turn attract game birds and wildlife. Sowing with kale will help to provide cover in the first year, with the tall, woody-stemmed clover taking over in the second year. Yellow Blossom Clover can thrive in the poorest of soils and being leguminous and deep rooting it is invaluable for improving soil structure and fertility.

Sowing rate 6kg/ha Pack size 2kg Treatment Untreated

# PERENNIAL CHICORY

Creates tall, dense cover, bolting in its second year to create a 6 - 7ft flowering hedge, useful where a perimeter barrier is required. It has good tolerance to drought, acid soils and major pests (but does not like very wet ground) and has a high mineral content including zinc, potassium and copper.

Sowing rate 5kg/ha Pack size 2kg Treatment Untreated

### **GREEN FENNEL**

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A perennial plant which provides excellent cover for both pheasant and partridge, its distinctive smell makes it highly attractive to both. When sown alongside other species it can create an excellent cover crop.

Sowing rate 6-8kg/ha Pack size 1kg Treatment Untreated



ed Canary Grass & Chicor

# Game Cover Mixtures

Our range of game cover mixtures are specially formulated to ensure you will be able to achieve the best from your cover crops. Combining different species into a mixture can extend the utilisation period, help to attract and hold specific types of game and provide feed and cover where both are required.

However, there are sometimes instances when none of the above will fit the bill for one reason or another. In these cases, specialised mixtures to suit individual specific requirements can be arranged.



# FOUR TEN MIXTURE

This mixture will provide cover and feed throughout the season. Sorghum will provide added warmth and cover below the maize. These species have similar husbandry techniques.

70% Game Maize

100%

30% Dwarf Sorghum

Sowing rate 35kg/ha Pack size 14kg Treatment Fungicide treatments

# SUNDOWN MIXTURE 🛛 🖎 🖾

A carefully blended mixture of game cover maize, sorghum and sunflowers that combine fantastic feeding and cover potential of the species. This mixture provides full season cover and feed. It is not recommended for marginal areas. 65% Game Maize

- 20% Sunflower
- 15% Dwarf Sorghum

100%

Sowing rate 32kg/ha Pack size 13kg Treatment Fungicide treatments

For Wild Bird Mixtures see pages 10 & 11 Partridge Mix, Northern sown mixtures see page 11

# BROADSHOT MIXTURE 🛛 🛚 🕅

A combination of species selected to provide feed and cover. This mixture can be left to regenerate for a second year. Species selected to facilitate economical weed control with chemicals such as Clopyralid.

| 34%  | Buckwheat            |
|------|----------------------|
| 17%  | Goldeneye Kale       |
| 10%  | White Millet         |
| 10%  | Phacelia             |
| 8%   | Forage Rape          |
| 8%   | Red Millet           |
| 5%   | Japanese Reed Millet |
| 4%   | Quinoa               |
| 4%   | Crimson Clover       |
| 100% |                      |
|      |                      |

Sowing rate 15kg/ha

Pack size 10kg Treatment Untreated

#### TRADITIONAL GAME COVER MIXTURE

A traditional mixture of species especially selected for their feed and cover qualities. This mixture is designed for a full season of cover that will provide holding, feed and cover for all game birds. The sunflowers add an attractive splash of colour. Due to the variance in seed size broadcast to achieve optimum establishment. Ensure that treated seed is covered by harrowing and rolling.



# DECOY GAME MIXTURE

Northern Star Mixture

A combination of eight small seed producing species which will provide excellent cover and feed and will last throughout the season. It is easy to sow and establish as all the seeds are of similar size.

23% Linseed 22% Buckwheat 18% Red Millet 18% White Millet 7% Fodder Radish 7% White Mustard 3% Japanese Reed Millet 2% Gold of Pleasure

Sowing rate 20kg/ha Pack size 10kg Treatment Untreated

#### 17.5% White Millet

- 15% Game Maize15% Red Millet14% Buckwheat
- 12% Intermediate Sorghum
- 10.5% Sunflower
- 9.5% Kale
- 2.5% White Mustard
- 2.5% Forage Rape
- 1% Gold of Pleasure
- 0.5% Phacelia

Treatment Various treatments

Sowing rate 25kg/ha Pack size 10kg

# **Game Cover Mixtures**

#### LATE COVER AND RESCUE MIXTURES



# **BOOST MIXTURE**

A fast growing, quick to establish, frost hardy crop. Ideal to sow in late summer or early autumn to provide cover that will last throughout the winter. Excellent as a 'rescue' mixture for patching failed crops or when a later sown crop is required.

- 70% Texsel Greens (B. carinata)
- 10% Hybrid Brassica
- 10% Fodder Radish
- 10% Brown Mustard

100%

Sowing rate 6 - 10kg/ha Pack size 5kg **Treatment Untreated** 

# LATE COVER MIXTURE

A rapidly establishing and maturing mixture providing winter cover to the height of 2 - 3 feet. It is often used as a patching crop where spring crops have failed. This mixture will tolerate drought conditions.

- 60% Forage Rape
- 28% Stubble Turnips
- 7% White Mustard
- 5% Fodder Radish

100%

Sowing rate 12 - 15kg/ha Pack size 5kg Treatment Untreated



# **KWIK FIX**

This is a flexible cover crop which can be used to patch failed spring game covers. Mustard increases the cover element and fodder radish prolongs the cover period. This mixture will not provide full season cover, but it is more winter hardy than straight mustard.

80% Fodder Radish 20% White Mustard

#### 100%

Sowing rate 12 - 15kg/ha Pack size 5kg **Treatment Untreated** 

# **RESCUE MIXTURE**

A rapid establishing and maturing mixture providing cover and potentially seeds in 16 weeks from sowing. Excellent as a rescue mixture for patching failed crops or where a later sown crop is required.

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- 50% Buckwheat
- 15% Fodder Radish
- 15% White Mustard
- 10% Gold of Pleasure

10% Texsel Greens

100%

Sowing rate 12kg/ha Pack size 10kg **Treatment Untreated** 

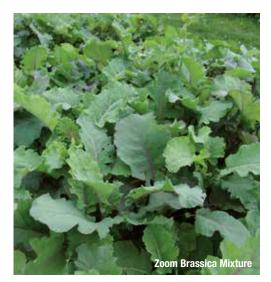
# **ZOOM BRASSICA MIXTURE**

Zoom is a mixture of Winfred hybrid brassica and forage rape. This is a very vigorous and quick growing mixture which is ideal for replacing failed crops or patching spring sown crops. High seedling vigour gives a reliable establishment of a high leaf to stem ratio crop with carefully selected varieties that have good disease and bolting resistance.

Fast growing crops that have potential to provide cover & seed

quickly

Sowing rate 6 - 10kg/ha Pack size 5kg **Treatment Untreated** 



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# **Forage Crops Selector**

Forage crops provide an extremely cost effective way of supplementing livestock rations during times when fodder may be scarce, during dry spells in summer and the cold winter months. They will supply substantial quantities of palatable material at relatively low production costs, balancing the amount of bought-in feed required.

#### **ICON KEY**



Stock should be introduced gradually over a two week period and an area of grassland should be available for animals to return to. Water and hay or straw should also be made available. Please contact your supplier for further guidance.

| Crop                 | Page No. | Pack Size              |           | owing Rate<br>ectare                                           | Sowing Date<br>Guide   | Utilisation<br>Period<br>Average Drill | ge Drill<br>th cm | ge Urill<br>th cm<br>ge Row<br>th cm |     | Suggested Guide to<br>Seedbed Fertiliser<br>(kg) ha |     |                        | of possible<br>Grazings | atter (%)  | Digestibility<br>(D-Value) | (WD %)      | ME (MJ/Jkg<br>DM) |
|----------------------|----------|------------------------|-----------|----------------------------------------------------------------|------------------------|----------------------------------------|-------------------|--------------------------------------|-----|-----------------------------------------------------|-----|------------------------|-------------------------|------------|----------------------------|-------------|-------------------|
|                      |          |                        | Broadcast | Direct Drill                                                   | Sowir<br>Gu            |                                        | Average<br>Depth  | Average<br>Width c                   | N   | Р                                                   | К   | Days Sowing<br>Grazing | No of<br>Gra            | Dry Matter | Dige:<br>(D-V              | 5)<br>CD (; | U<br>ME<br>ME     |
| Stubble Turnip       | 38       | 10kg &<br>25kg         | 7.5       | 5                                                              | Apr-mid<br>Sept        | Jun-Jan                                | 1-2               | n/a                                  | 75  | 40                                                  | 40  | 60-100                 | 1                       | 12-15      | 70                         | 17-18       | 10-11             |
| Main Crop Turnip     | 38       | 2kg                    | 5         | 2.5 - 3.5                                                      | May-Jul                | Oct-Jan                                | 1-2               | n/a                                  | 40  | 80                                                  | 100 | 60-100                 | 2+                      | 12-15      | 80                         | 17-18       | 10-11             |
| Forage Rape          | 39       | 10kg &<br>25kg         | 10        | 6                                                              | May-end<br>Sept        | Jun-Jan                                | 1-2               | n/a                                  | 20  | 40                                                  | 40  | 90-100                 | 2                       | 10-12      | 70                         | 19-20       | 10-11             |
| Fodder Beet          | 40       | 1ac<br>50,000<br>seeds | -         | Precision drill<br>100,000/ha                                  | Mar-May                | Oct-Mar                                | 2.5-3             | 50-60                                | 110 | 50                                                  | 50  | -                      | -                       | 12-19      | 78                         | 12-13       | 12-<br>12.5       |
| Swede                | 41       | 500g<br>& 1kg          | 2.5 - 5   | Precision drill<br>370-865 kg/<br>ha grade H<br>Direct Drill 1 | Apr-June               | Aug-Mar                                | 1-2               | 45-70<br>graded<br>40<br>natural     | 40  | 80                                                  | 100 | 170-250                | 1                       | 17-20      | 82                         | 10-11       | 12-13             |
| Kale                 | 42       | 1kg                    | 7.5       | 2.5 - 5                                                        | Apr-Jul                | Sept-Mar                               | 1-2               | 50                                   | 100 | 50                                                  | 120 | 150-220                | 1                       | 15-17      | 68                         | 14-17       | 10-11             |
| Spitfire             | 39       | 5kg &<br>25kg          | 10        | 6                                                              | May-<br>end Sept       | Jul-Dec                                | 1-2.5             | 15-20                                | 20  | 40                                                  | 40  | 90-110                 | 2                       | 12-15      | 70                         | 18-19       | 10-11             |
| Zoom                 | 39       | 5kg                    | 10        | 6                                                              | April-Sept             | Sept-Jan                               | 1-2               | various                              | 110 | 55                                                  | 55  | 90-110                 | 2                       | 12-15      | 70                         | 18-19       | 10-11             |
| Rapid Root Mixture   | 43       | 5kg                    | 8.5       | 6                                                              | mid<br>Apr-mid<br>Sept | Jul-Dec                                | 1-2               | n/a                                  | 60  | 50                                                  | 50  | -                      | -                       | -          | -                          | -           | -                 |
| Winter Graze Mixture | 43       | 5kg                    | 8.5       | 6                                                              | mid<br>Jul-mid<br>Sept | Post<br>Christmas                      | 1-2               | n/a                                  | 60  | 50                                                  | 50  | -                      | -                       | -          | -                          | -           |                   |
|                      |          |                        |           | 9-10-2                                                         | the r                  |                                        | 14 - SA           | 1                                    |     | 11                                                  |     | 1.14                   | All                     | B.S.       |                            | Sour        | ce: NIAB          |

DISCLAIMER These tables are given in good faith and intended for general guidance only. Weather, local conditions and crop rotations must always be taken into account. Always consult a FACTS qualified advisor.

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#### **Stubble Turnips** are a fast growing catch crop, popular with livestock farmers. They may be sown after first cut silage for summer grazing or after winter cereals for autumn usage. When planting a large acreage it is advisable to stagger sowing dates, increasing the seed rate in dry conditions. If being used for dairy cow grazing it is important to take into consideration the distance between the field and the milking parlour. Strip grazing is advisable if possible to limit wastage. There are two types of stubble turnip: bulbing (see Barkant and Vollenda) and non bulbing (see Tyfon and Avalon).

Turnips

# Stubble Turnips Yield and Feed QualityAverage Dry Matter Yield3.5 - 4.5 tonnes/haAverage Fresh Yields38 - 45 tonnes/haCrude Protein17 - 18% (mainly leaves)Digestibility Value68 - 70%Dry Matter8 - 9%Metabolisable Energy11MJ/kg DMSugars in DM55%

# Bulbing types

#### BARKANT

A winter hardy, highly digestible variety with high dry matter. Produces large tankard shaped roots which are palatable by both sheep and cattle. This is a proven and reliable stubble turnip.

Sowing rate 5 - 7.5kg/ha Pack sizes 10kg & 25kg Treatment Untreated

# **VOLLENDA** (Tetraploid)

A large leafed, highly digestible variety with good early vigour and good disease resistance. It retains its palatability throughout the season, and is noted for its yield, speed of growth and bolting resistance.

Sowing rate 5 - 7.5kg/ha Pack sizes 10kg & 25kg Treatment Untreated (Limited)

# Non Bulbing types

#### TYFON

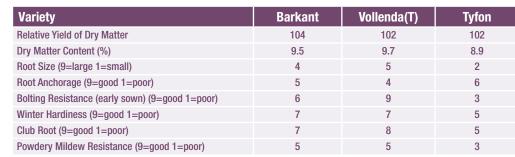
A leafy, fast growing cross between Chinese cabbage and stubble turnip. It exhibits high frost resistance and can be utilised within eight to ten weeks after sowing. There is potential for regrowth.

Sowing rate 5 - 7.5kg/ha Pack size 5kg Treatment Untreated

### **AVALON LEAFY TURNIP**

Avalon is a very leafy turnip that can be sown in spring or autumn for forage production these leafy turnips can be grazed after just 6-8 weeks. Avalon also has a very high dry matter yield.

Sowing rate 5 - 7.5kg/ha Pack size 10kg & 25kg Treatment Untreated



### | Main Crop Turnip

P., N.,

#### **R.** N

Later maturing than stubble turnips and with higher dry matter, higher yields and better winter hardiness. They have a growing period of 12 - 15 weeks and provide excellent autumn and early winter feed for sheep and cattle.

# **GREEN GLOBE**

Green Globe turnips produce soft, easily eaten roots that are well anchored into the ground, suitable for grazing by all types of stock. They will provide a very high fresh yield from large bulbs and are utilised between October and January, preferably strip grazed to reduce waste.

Sowing rate Drill 2.5 - 3.5kg/ha Broadcast 5kg/ha Pack size 2kg Treatment Untreated Sow Late May to July

| Variety                              | <b>GREEN GLOBE</b><br>100% = Tonnes/ha |
|--------------------------------------|----------------------------------------|
| Total Dry Matter Yield (%)           | (5.7t/ha) 100                          |
| Total Fresh Yield (%)                | (70.6 t/ha ) 100                       |
| Dry Matter (%)                       | 8.2                                    |
| Powdery Mildew Resistance (9 = Best) | 4                                      |
| Root Shape (9 = Best)                | 6                                      |
| 0                                    |                                        |

Source: NIAB

Source: Advanta & SCRI trials

Forage Rape

**Forage Rape** has the advantage of being a very fast growing crop suitable for grazing by sheep or cattle. It is an ideal catch crop for boosting midsummer forage production for livestock farmers when planted in the spring, it is also suitable for fattening lambs in the autumn/winter. Forage rape extends the grazing season in the autumn and is superb for flushing ewes. It is better to strip graze to avoid excessive wastage.

Forage Rape can be mixed with stubble turnips and kale to combine the many benefits of these crops (see page 43 for root mixtures).

#### Forage Rape Yield and Feed Quality

| Average dry matter yield | 3.5 - 4 tonnes/ha        |
|--------------------------|--------------------------|
| Average fresh yields     | 24 - 35 tonnes/ha        |
| Crude protein            | 19 - 20% (mainly leaves) |
| Digestibility value      | 65D                      |
| Dry matter               | 12 - 14%                 |
| Metabolisable energy     | 10 - 11 MJ/kg DM         |

#### EMERALD

Emerald is a proven, well known variety producing rapidly establishing, medium to tall leafy plants maturing in 10-12 weeks after sowing. It is fast growing with average dry matter yields and good general disease resistance. Importantly, it has very good feeding quality, being high in protein and easily digestible, remaining palatable well into the winter. An added benefit is its widely branched root system for improvement of soil structure.

Sowing rate 6 - 10kg/ha Pack size 10kg & 25kg Treatment Untreated

#### ZOOM BRASSICA MIXTURE

Zoom is a blend of Winfred hybrid brassica and forage rape. This is a very vigorous and quick growing mixture which is ideal for replacing failed crops or patching spring sown crops. High seedling vigour gives a reliable establishment of a high leaf to stem ratio crop with carefully selected varieties that have good disease and bolting resistance.

Sowing rate 6 - 10kg/ha Pack size 5kg Treatment Untreated

#### SPITFIRE HYBRID FORAGE BRASSICA

"I put my Angus X bullocks into this crop of Zoom in early October and they got 6 weeks of tremendous grazing off it. It was chest high and once they got used

There are some regrowth shoots now so I might get the sheep over it before I reseed with grass in the spring."

to it, they just loved it.

Doll, Brora, Sutherland, Scotland

lain McKenzie

Spitfire is a modern hybrid rape created by crossing rape with kale and is a good companion to use with other fast establishing brassicas. It is a medium-tall variety with high dry matter yield, excellent aphid tolerance, good stock palatability and rapid establishment to maturity. It also has very good regrowth potential but needs to be carefully managed to avoid damage to stems. Spitfire is a multi–purpose rape suitable for planting in spring for excellent summer and autumn feed or in early autumn for quality winter feed. The main strengths of Spitfire are excellent yield, insect tolerance, and a low dry matter (DM%) stem. The very low DM% content of the stem produces high quality forage with good utilisation at grazing.

Sowing rate 6 - 10kg/ha Pack size 5kg & 25kg Treatment Untreated

Stock should be introduced gradually over a two week period and an area of grassland should be available for animals to return to; water and hay or straw should also be made available. Please contact your supplier for further guidance.



# • Fodder Beet

**Fodder Beet** is grown as a main root crop. It can produce substantial yields of high quality fodder and is an excellent supplement to grass silage. The roots are very palatable to stock and have superb feed quality. Specialist harvesting equipment is required to lift the roots and storage is required unless they are strip grazed in situ.

Medium dry matter varieties tend to have a higher percentage of root above ground and can be lifted with a top lifter and therefore have a relatively low dirt tare. These highly palatable roots can be fed whole to stock. High dry matter varieties tend to sit further in the ground and require a sugar beet harvester to lift them. Due to the higher dirt tare and hardness of the root, these varieties may need to be chopped and washed before feeding. After wilting, the tops may be fed to stock and can contribute a further yield of 3-4 tonnes of protein-rich dry matter per hectare.

Pack size - 50,000 seeds per acre

Seed Treatment - Force 10 & Pelleted Untreated seed (Limited)

| Fodder Beet Yield and Fe | ed Quality         |
|--------------------------|--------------------|
| Average dry matter yield | 17 - 22 tonnes/ha  |
| Average fresh yields     | 95 - 110 tonnes/ha |
| Crude protein            | 12 - 13%           |
| Digestibility value      | 78D                |
| Dry matter               | 12 - 19%           |
| Metabolisable energy     | 12 - 12.5MJ/kg DM  |
| Sugars in DM             | 65%                |



### ALPES

The ultimate fodder beet variety from the world leading DLF plant breeding programme. It has exceptional all round characteristics, thus ensuring less waste and more profit. Alpes benefits from large top size and has 33% of its yellow root above ground which allows for easy lifting. Good resistance to bolting.

# MONRO

An ideal variety for grazing with its low dry matter of 14.6%. It has exceptional high fresh yields from red roots that are mostly above ground.



# JAMON

A very consistent variety producing a clean highly palatable orange root with average dry matter yields. It has good resistance to leaf disease and bolting. Jamon benefits from large top size and has 33% of its root above the ground which allows for easy lifting.

# ENERMAX

An exciting dual purpose variety for both fodder and bio-energy production. High yielding with a low dirt tare.

Enermax has a clean, white, smooth-skinned root and is shallow rooting, resulting in a cleaner end product particularly important for the bio-fuel market.

It has a higher root yield when compared with the well-known and popular variety Magnum. Official variety testing (Denmark 2010 - 2011), has shown that Enermax can produce 21 tonnes/DM/ha from the root only, with the beet tops adding approximately 5 tonnes DM/ha.

Enermax has the additional benefit of being Rhizomania tolerant and so is suitable for growing in the east of the country where sugarbeet is a widely grown crop, as well as in the west and other areas.



"This is our fourth season growing Enermax fodder beet, it has replaced potatoes in our rotation. It is grown to sell as a cash crop, harvested to order. We are very pleased with Enermax, it has healthy, vigorous growth with high yield, high dry matter and clean roots providing us with a viable option to potatoes which has widened our potential market. We have no plans to grow anything else."

C & G Moss Risley, Warrington

### MAGNUM

Magnum has a consistent root size and reliable high dry matter yields. It is a very palatable variety therefore increasing appetite and dry matter intake in all stock. Higher dry matter fodder beet has been shown to increase milk yield and daily live weight gain. Due to its high dry matter content it is more frost resistant than other varieties with a high proportion of clean, white root in the ground.



Bangor is an improvement on the illustrious/long-timeacknowledged varieties Kyros and Troya – resulting in a yield increase and uniform roots. Bangor is easily lifted on all soil types, due to the regular shape of the root and its high position above the ground. With a medium DM in the root it results in a very high yield of 105%.



outstanding product of the year Everyone's talking about it!



**Swedes** are a full season root crop which are mainly fed in situ, but can also be lifted and stored in a clamp. They are an excellent high energy winter feed. It is advisable to use an electric fence to reduce wastage. They do best in areas of high rainfall, so are generally grown in the more northerly and western areas of the UK. Swedes can be grown in a wide range of soil types with good drainage as they are sensitive to compaction and poor drainage; they do best in soils with a pH of approximately 6.5. The majority of swede crops are now sown with precision drills which require a level seed bed. Varieties are generally classed as fodder or culinary types; however there are some dual purpose types.

All natural seed is packed in 1 kg packs Untreated

**20 B** 

All graded seed is packed in 0.5 kg packs Untreated

| Swede Yield and Feed Quality | 1                    |
|------------------------------|----------------------|
| Average dry matter yield     | 7 - 10 tonnes/ha     |
| Average fresh yields         | 70 - 80 tonnes/ha    |
| Crude protein                | 10 - 11%             |
| Digestibility value          | 82D                  |
| Dry matter                   | 9 - 13%              |
| Metabolisable energy         | 12.8 - 13.1 MJ/kg DM |
| Sugars in DM                 | 59%                  |

#### AIRLIE 🌇 🍋 🔁 🚳

Airlie is a low to medium dry matter variety with a very high fresh yield and good disease resistance. It is a dual purpose variety suitable for fodder and culinary use with purple skin and creamy white flesh. Airlie is an early to intermediate use variety.

# Marian 🌇 🍋 🜊 🍘

Marian is a medium dry matter variety with moderate resistance to club root. It is a dual purpose variety suitable for fodder and culinary use with yellow coloured flesh and purple skin.

# RUTA OTOFTE

Ruta Otofte is a medium dry matter variety with good mildew resistance. It is a dual purpose variety suitable for fodder and culinary use with purple skin and cream coloured flesh. Ruta Otofte is a popular variety with sheep farmers.

# KENMORE

Kenmore is an early maturing variety with medium dry matter, best suited as stock feed not culinary use. It has good winter hardiness which means it has a very wide utilisation window. Kenmore has bronze skin with white flesh.

| Variety                        | Airlie       | Marian       | Ruta Otofte  | Kenmore      |
|--------------------------------|--------------|--------------|--------------|--------------|
| Fodder                         | 1            | $\checkmark$ | $\checkmark$ | $\checkmark$ |
| Culinary                       | $\checkmark$ | 1            | $\checkmark$ |              |
| Root shape (9=globe 1=tankard) | 6            | 4            | 5            | 5            |
| Skin colour                    | Light purple | Purple       | Dark purple  | Bronze       |
| Flesh colour                   | Creamy white | Yellow       | Cream        | White        |

#### Seed Rate Calculator Guide - No. of Seeds X 1000

| Spacings    | Row Width |     |     |     |     |     |  |
|-------------|-----------|-----|-----|-----|-----|-----|--|
|             | 18"       | 20" | 22" | 24" | 26" | 28" |  |
| Spacings 2" | 174       | 157 | 143 | 131 | 121 | 112 |  |
| Spacings 3" | 116       | 105 | 95  | 87  | 80  | 75  |  |
| Spacings 4" | 87        | 78  | 71  | 65  | 60  | 56  |  |
| Spacings 5" | 70        | 63  | 57  | 52  | 48  | 45  |  |
| Spacings 6" | 58        | 52  | 48  | 44  | 40  | 37  |  |

(For seed size grade H (1.75 - 2.00mm) 1000 seed weight grade H approx 3.2g)



5. P.

**Kale** is a brassica traditionally grown for grazing in the autumn and winter. It can also be cut and fed to stock 'in house' or as an alternative can be ensiled as big bale kaleage. Kale is very useful as it can extend the grazing season. This crop is best strip grazed to avoid excessive wastage and ensure both leaf and stem are eaten. It is advisable to stagger sowing dates to ensure it does not over-mature. It is very adaptable and can grow on most sites throughout the UK. Kale can also be used as game cover (See page 28).

#### **CORSA**

A high yielding, winter hardy giant kale variety with good aphid tolerance. Corsa has been shown to maintain a higher leaf percentage and stem quality than other traditional giant kales. Its soft stem, compared with other giant type kales, increases palatability and stock utilisation resulting in the improved performance of both sheep and cattle. Corsa delivers a high volume of high quality forage throughout the season.

Sowing rate 2.5 - 7.5kg/ha Pack size 1kg & 5kg **Treatment Untreated** 

# **GRÜNER ANGELITER**

A very high vielding variety with good winter hardiness and excellent feeding quality with fresh yields 15% higher than Caledonian kale and 10% higher than Bittern in German trials. Grüner Angeliter has been the mainstay forage variety of kale in New Zealand for many years and since its introduction to the UK has become equally popular over here. Its high yields make it ideal for utilisation by dairy and beef cattle and as winter feed for sheep.

Sowing rate 2.5 - 7.5kg/ha Pack size 1kg & 5kg **Treatment Untreated** 

# PROTEOR

An excellent leafy variety with high leaf to stem ratio. therefore increasing palatability and stock utilisation. Proteor is a high yielding, medium height kale with winter

Sowing rate 2.5 - 7.5kg/ha Pack size 1kg & 5kg Treatment Untreated

hardiness and good disease resistance.

#### Kale Yield and Feed Quality Average dry matter yield 8 - 10 tonnes/ha 60 – 65 tonnes/ha Average fresh yields Crude protein 16 - 17% fresh. 19 - 25% ensiled **Digestibility value** 68D Dry matter 14 - 16% Metabolisable energy 10 - 11 MJ/kg DM 17% Sugars in DM



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# **Root Mixtures & Arable Silage**

### **Root Mixtures**

The following two catch crop mixtures combine the benefits of stubble turnips and forage rape, excellent for fattening lambs during autumn and winter providing winter keep for all stock. These mixtures have been in great demand over recent years and the results from stock utilisation have been excellent.

#### RAPID ROOT (pre December use)

The forage rape element of this mixture ensures quick establishment and high protein yields, whilst the stubble turnips provide energy and stockholding capacity. The mixture is ideal for fattening stock and will provide grazing from July through to December. Sow mid April - mid September

| 60%  | Forage Rape    |
|------|----------------|
| 35%  | Stubble Turnip |
| 5%   | Kale           |
| 100% |                |

Sowing rate 6 - 8.5kg/ha Pack size 5kg Treatment Untreated 🕱 🗈 🛛 WINTER GRAZE (post Christmas use) 🕷 🗟

A mixture of palatable, proven varieties ideal for sowing after winter cereals. The mixture is suitable for post Christmas grazing as it exhibits very good winter hardiness, which is improved by the addition of the kale. Sow mid July - mid September

| 35%    | Stubble Turnip<br>Forage Rape<br>Kale            |
|--------|--------------------------------------------------|
| 00%    |                                                  |
| Pack s | g rate 6 - 8.5kg/ha<br>ize 5kg<br>ient Untreated |

**Arable Silage Mixtures** offer an alternative or additional feed to grass or maize silage and are particularly suitable for farmers wishing to increase their levels of home-produced protein and reduce their reliance on purchased feed and fertiliser. They produce a cost-effective, high quality forage of consistent quality and palatability, with high yields of dry matter even in dry seasons and cold weather. They can be selffed from the silage-face or as bales and their early harvest allows for earlier drilling of other autumn combinable crops or reseeding of grass.

#### CONVENTIONAL MIXTURES

| Pea 8 | & Barley No.1   |
|-------|-----------------|
| 66%   | Spring Peas     |
| 34%   | Spring Barley   |
| Barle | y Pro Plus No.2 |
| 50%   | Spring Barley   |
| 20%   | Maple Peas      |
| 20%   | Peas            |
| 10%   | Spring Vetch    |
| Oat F | Pro Plus No.3   |
| 36%   | Spring Peas     |
| 200/  | Coring Dorlov   |

| 36% | Spring Peas   |
|-----|---------------|
| 32% | Spring Barley |
| 32% | Spring Oats   |
|     |               |

ORGANIC MIXTURES

#### Organic Pea & Barley No.1 35% Organic Spring Barley

35%Organic Spring Peas30%Spring Peas

# Organic Barley Pro Plus No.250%Organic Spring Barley20%Organic Spring Peas20%Prophet or Bluetooth Peas

10% Spring Vetch

Organic Oat Pro Plus No.335%Organic Spring Barley35%Organic Spring Oats30%Prophet or Bluetooth Peas

### STRAIGHTS

Rather than grow a mixture, some growers prefer to grow a single crop on it's own. We can offer Vetch and Lucerne for these situations.

> for more information

#### Spring or Winter Vetch Packed in 25kg bags

Organic Vetch Packed in 25kg bags

Lucerne (inoculated) Packed in 25kg bags

Organic Lucerne (inoculated) Packed in 25kg bags

Stock should be introduced gradually over a two week period and an area of grassland should be available for animals to return to. Water, hay or straw should also be made available. Please contact your supplier for further guidance.

All mixtures are available packed in 500kg bags. Treatment: Various and Organic Untreated The suggested sowing rate for all mixtures is 150kg - 225kg per hectare. Book early to avoid disappointment.