

HIF Seeds 2016



GRASS & FODDER CROPS

Good grass leys whether for cutting or grazing are the foundation of every livestock enterprise and for over 50 years the HF brand has been at the forefront of innovation in grass seed mixtures and has earned its rightful place as one of the UK's leading grass seed brands. The HF logo on the bag is synonymous with the highest seed quality, the very best varieties and unrivalled performance in terms of productive and palatable grass swards.



Now part of DLF, the world's largest grass seed company, HF Seeds has access to greater technical and commercial resources than ever before. With over 130 years' experience in plant breeding and seed production, DLF has Europe's largest research and development programme to breed new and improved grass and clover varieties which has led to the company having significantly more varieties on UK Recommended Lists than any of its competitors.

With the backing of DLF, HF Seeds continues to go from strength to strength.

Technical Excellence

HF mixtures are formulated with only the very best varieties specially selected from data obtained in both UK Recommended List trials and from the company's own trial plots

Seed Quality

HF standards of seed purity and germination are literally second to none ensuring the rapid establishment of dense, weed free swards

Feed Value

The emphasis placed on both forage quality and digestibility ensures that the maximum potential from forage is achieved

Mixture Range

With a comprehensive mixture range, HF has a carefully designed mixture for all locations and different sward uses

Innovation

Research and development ensures that HF mixtures lead the field with innovative products like GrassMax™, ProNitro®, Advanced™ Grasses and high DNDF varieties



Hi-tech trial plot harvesters instantly measure yield and forage quality allowing HF to select the very best varieties

The HF total quality philosophy goes much further than just varieties and mixture trials however, and extends as far as the farm gate and the end user. All HF products are backed by a country-wide network of in-house specialists and experienced distributors who are capable of offering technical help and advice on all aspects of mixture selection and establishment.

Contents

3	The Value of Reseeding	13	Westerwolds Ryegrass
4	Mixture Design and Quality	14 – 20	The Mixtures
5	The Importance of Digestible Fibre	21 – 23	Overseeding
6	Advanced™ Grasses	24 – 25	High Clover and Organic Mixtures
7	Innovation in Action - ProNitro®	26 – 27	Greening
8 – 9	The Clover Story	28 – 30	Root and Fodder Crops
10 – 11	HF Varieties	31	HF Countryside
12	Mixture Selector		

Grass and Fodder Crops THE VALUE OF RESEEDING

Good grass is the foundation of every livestock enterprise and the quality of swards whether for cutting or grazing, can have a huge impact on margins and profitability. Unfortunately it is difficult to accurately measure production from grass and falls in production often go unnoticed resulting in increased purchases of bought-in feed which could have been avoided.

Every grassland farmer is aware that grass yields decline as the sward ages. The rate of decline is influenced by many different factors and will vary from farm to farm but through time the sown species gradually die out and are replaced by unproductive and poor quality natural and weed grasses. On average after 7 or 8 years, only around 60% of the sown species are still present with the remaining 40% as bare ground or unproductive weed species.

This decline in sown species has a huge impact on yield, forage quality, the response to fertiliser and the cost of production of both grazed and cut grass, as can be seen in the table below

	Good Ley	Poor Ley
Yield (t DM/ha)	12 t	8 t
Forage Quality (MJ ME/kg DM)	12.0 ME	10.5 ME
Response to Fertiliser N (kg : kg)	25 : 1	15 : 1
Cost of Production (p/kg DM) – grazed	3 – 5 p	8 – 12 p
Cost of Production (p/kg DM) – silage	8 – 10 p	16 – 20 p

In simple terms, every single acre performing at 75% capacity needs the equivalent of a tonne of barley to fill the gap between 75% and 100% and with many grass fields performing at significantly less than 75% of their potential, unnecessary purchased feed bills can rapidly escalate.

The table below shows the potential losses as swards age and the substantial cost of replacing lost production with bought-in feed.

Age of Ley (Years)	Yield (t DM/ha)	ME (MJ/kg DM)	Lost Energy ('000's MJ/ha)	Milk Equivalent (litres/ha)	Concentrate Replacement Cost (£)
1	13.0	12.0			
3	11.5	11.8	18	3,400	360
6	8.5	11.0	55	10,200	1,100
9	7.0	10.5	80	15,000	1,590

Provided it is started early enough, regular over-seeding with the HF range of **GrassMax** mixtures (see pages 21-23) can help to reverse the decline in plant numbers maintaining both yield and forage quality. However in older swards where sown species have declined to a low level and where there may be a thick turf mat and fertility issues, overseeding is less likely to be successful and in many cases a full reseed is the only option.



Restoring a poor sward to full production through overseeding or a full reseed can dramatically improve production and overall sward performance and reduce the need for bought in feed

Grass and Fodder Crops MIXTURE DESIGN AND QUALITY

The achievement of a good sward which meets the intended purpose, depends entirely on the quality of the grass and clover varieties within the mixture in terms of both their suitability for the job and their germination and purity.

Mixture Design

Good grass mixture design begins with the assessment of individual variety characteristics and then uses this information to combine mixture components in different proportions to produce the best possible mixture for the intended duration and purpose of the final sward.

Before a variety is included in an HF mixture the results of both internal and external trial work are carefully assessed for the following characteristics.

- **Total annual and seasonal yield**
- **Maturity and heading date**
- **Forage quality and digestibility**
- **Sugar and protein yields**
- **Palatability**
- **Disease resistance**
- **Sward density**
- **Persistency and winter hardiness**

Once individual variety performance data has been gathered it is then a question of dovetailing varieties together in the correct proportions to produce a mixture which will meet the requirements of the final sward.

The required sward characteristics must take into account

- **Sward purpose and management regime**
- **Type of stock**
- **Location and climate**
- **Cutting dates**
- **Required seasonality of growth**
- **Clover content**

The result of this painstaking process and attention to detail is a top quality mixture that will not only do 'what it says on the tin' but which will perform at a very high level.

Mixture Quality

Seed quality is crucial in the establishment of dense, weed free swards and although all seed products are guaranteed to meet minimum certification standards within the UK, these standards are surprisingly poor and there can be huge variation in terms of germination and purity not only between varieties but also within stocks of the same variety.

Current UK seed certification standards mean that in some species up to a quarter of the bag can be dead seed that will never produce a plant. Given the importance of high germination to good establishment, all HF seed stocks are selected on the basis of being at least 10% higher than UK certification standards ensuring better establishment, denser swards and better value for money.

SPECIES	UK Minimum Germination	HF Minimum Germination	HF Actual 2015 Germination	Benefit of HF
Italian Ryegrass	75.0%	90.0%	92.1%	17.1%
Perennial Ryegrass	80.0%	90.0%	91.9%	11.9%
Timothy	80.0%	90.0%	92.6%	12.6%

The HF guarantee of at least 10% more live seed in every bag is equivalent to a saving of around £12 per acre at 2016 prices but the real value is in better establishment, more plants per acre and much denser swards

In addition to low germination standards, UK grass seed certification also allows the presence of relatively high levels of serious grass weeds such as docks and couch, potentially introducing literally thousands of problem weed seeds each time a field is reseeded. Recognising the consequences of these damaging levels of weed contamination, HF Seeds imposes its own freedom from weeds standards which are unequalled elsewhere.

	UK Minimum Standard	HF Standard
Docks	1,250	0
Couch	30,000	2,500
Blackgrass	25,000	2,500

The table shows the potential number of serious weed seeds which can be sown per acre each time a field is reseeded and clearly demonstrates the huge advantage of HF's rigorous purity standards.

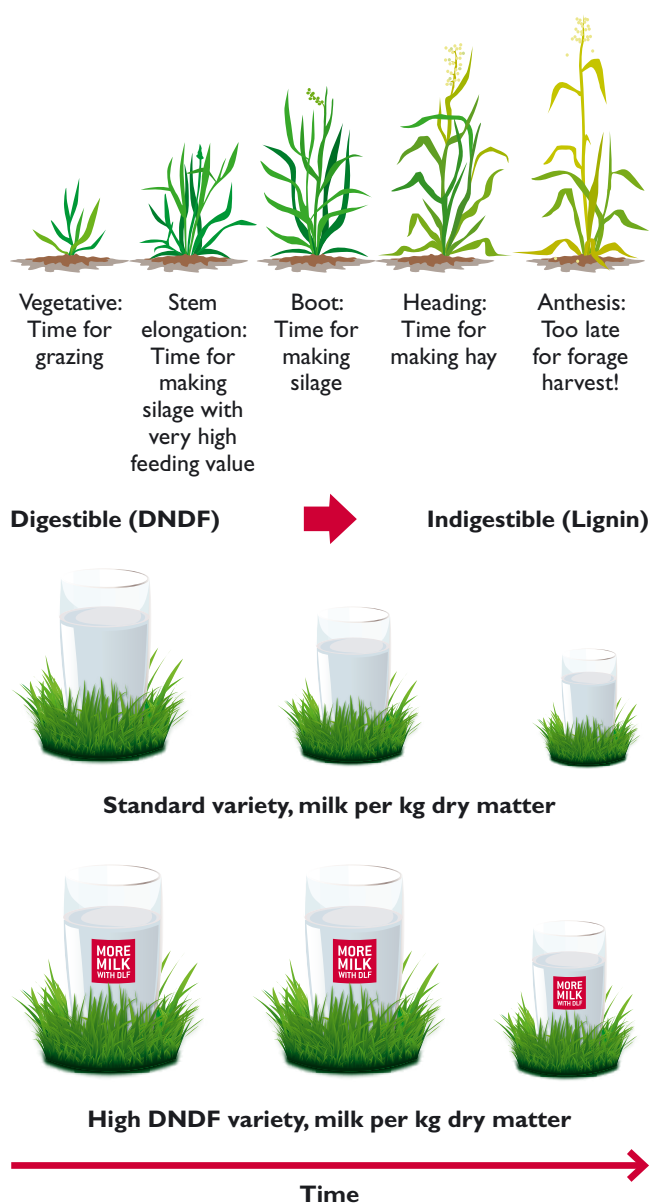
Grass and Fodder Crops THE IMPORTANCE OF DIGESTIBLE FIBRE

Right from the very beginning of the HF brand in the 1960's, HF Seeds recognised the importance of using the very best varieties in terms of yield, forage quality and feed value and that a variety's overall performance depended on a combination of many different characteristics. This total quality philosophy has kept HF Seeds at the forefront of variety evaluation techniques and has led to the introduction of many new quality assessment methods over the years.

High yielding livestock need top quality forage particularly when the proportion of forage in the diet is decreasing, indeed analysis of trends in dairy cow diets has shown that milk from forage has declined from an average of 2800 litres in 2004 to a current average of less than 1980 litres. Recent pioneering research into animal nutrition has shown that Cell Wall Digestibility (DNDF) is the single most important quality parameter in grass. DNDF is vital to rumen health, it stimulates the rumen function, stabilises pH and improves both the digestion process and the utilisation of nutrients. Nutritionists now recommend that dairy cows require a minimum of 27 – 30% DNDF in the ration dry matter and that 70 – 80% of this should come from forage. Consequently where cows are receiving high levels of concentrate, a high DNDF concentration in the forage component of the diet becomes even more important.

Young grass always produces forage with high digestibility but yields are low and as grass matures the converse applies. High DNDF varieties bring improved animal performance by delivering the best combination of yield and quality as grasses progress through the different growth stages.

The illustration below shows how high DNDF varieties maintain higher digestibility throughout the growth stages and the impact on animal production.



For 2016 HF has been able to include DNDF as one of its variety selection criteria and as a result has gone beyond the quality assessments used to produce UK Recommended Lists thus ensuring only the 'best of the best' varieties are included in the 2016 mixture range.



State of the art technology has allowed HF Seeds to introduce fibre digestibility into its variety selection process



'With milk quotas now gone in Ireland I have increased the herd size by 20% and have plans for further expansion. My expansion plans are based on maximising yields of top quality forage. Particular attention to silage quality has really paid off with silage this year cut on 20th May showing a D-value of 78.8, a record for the farm. I put at least some of that down to HF's selection of top quality varieties. HF quality also transfers into their grazing mixtures with dense, persistent and high yielding swards'

Frankie Crinion, Beapark, Navan, County Meath

Grass and Fodder Crops ADVANCED™ GRASSES

Throughout its long history HF has been renowned for innovation in grass seed technology from the introduction of Tetraploids in the early 1970's right through to HF's most recent advances in the use of DNDF in variety assessment and the revolutionary ProNitro®.

Following several years of extensive trial work in conjunction with its parent company DLF, HF Seeds is once again leading the way with the introduction of its range of Advanced™ Grasses which has been developed by crossing traditional Ryegrasses with both Meadow Fescue and Tall Fescue. Although the idea of crossing Fescues (Festuca) and Ryegrass (Lolium) is not new, the crossing of improved modern varieties has produced a species (Festulolium) which combines the best characteristics of Ryegrass and Fescue and which has unique properties not found in any other species.

Three Advanced™ Grasses are included in the 2016 mixture range

LOFA

Advanced™ Hybrid Ryegrass

As an Advanced™ Hybrid Ryegrass, LOFA has the most general appeal for extensive use within UK grass mixtures. Behaving like a Hybrid Ryegrass but with very fast establishment, high yields, excellent stress tolerance and disease resistance, it is an ideal component in 3 – 5 year mixtures and particularly suitable as a companion grass for Red Clover.

PERSEUS

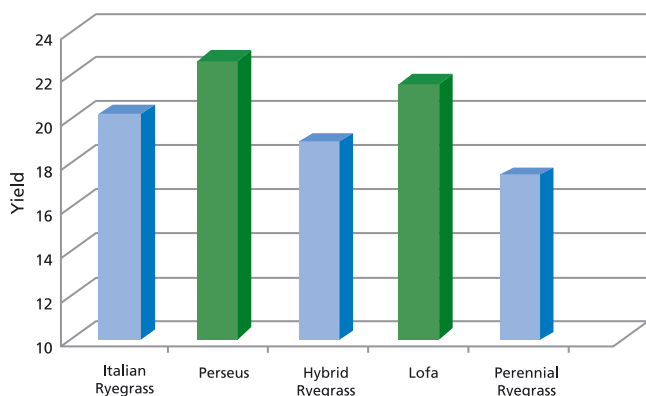
Advanced™ ITALIAN Ryegrass

PERSEUS is a variety of Advanced™ Italian Ryegrass with much better persistence, stress tolerance and disease resistance than conventional varieties of Italian. It is very high yielding with a high sugar content and excellent early spring growth making it an ideal component in short to medium term cutting mixtures. With its growth characteristics PERSEUS is also a suitable companion grass for Red Clover.

HYKOR

Advanced™ TALL FESCUE

Tall Fescue is extremely drought tolerant and consequently is used in hot dry countries as a forage species. In the UK the Advanced™ Tall Fescue variety HYKOR with its improved tolerance of general stress and very dry conditions offers a unique solution for drought conditions and could be considered as an alternative to Cocksfoot offering significantly better yields and higher quality.



Source : UK Recommended List and DLF Trifolium trial data



Lofa and Perseus are ideal companion grasses for Red Clover



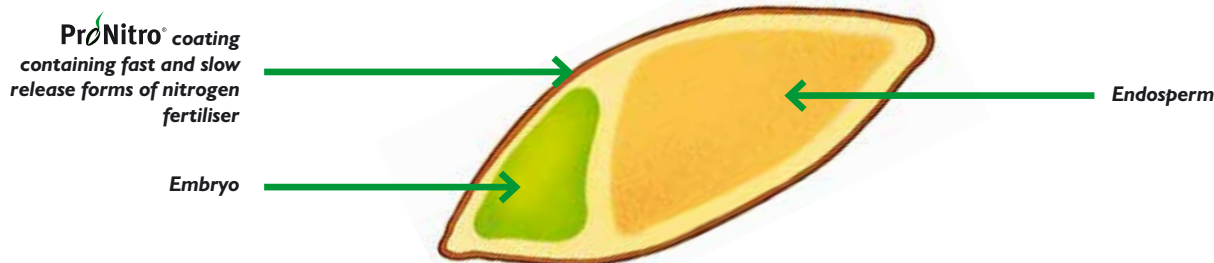
One major advantage of Advanced™ Grasses is their disease resistance compared to conventional varieties as can be seen above

Grass and Fodder Crops INNOVATION IN ACTION

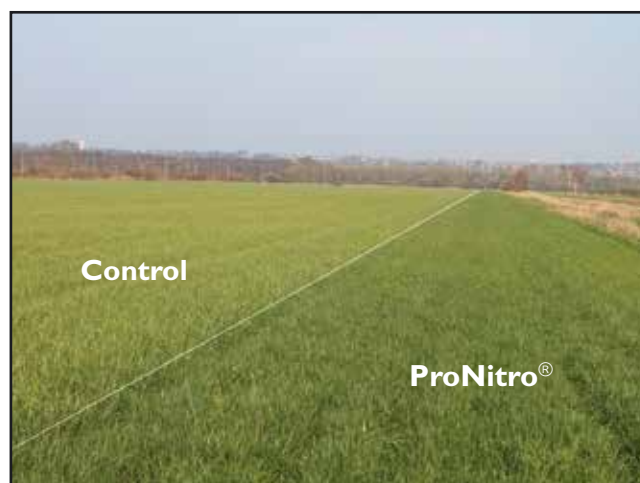
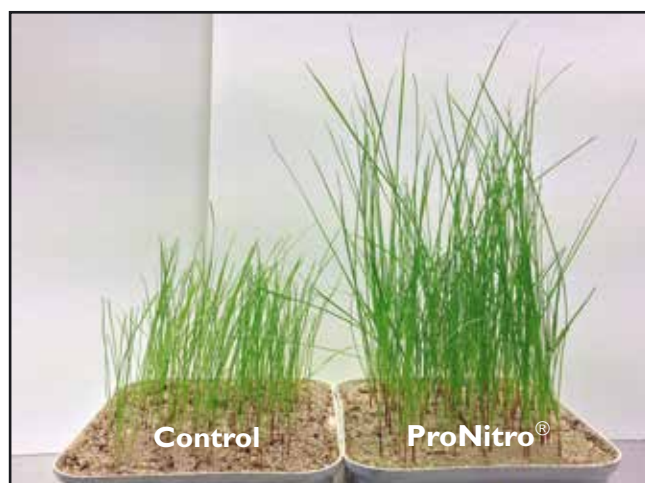
Since HF Seeds was first launched in the 1960's it has been at the forefront of delivering innovation and introducing new technology into grass seed mixtures. From the introduction of Tetraploid and Hybrid Ryegrasses right through to developing specialist overseeding mixtures and the unique Festuloliums, HF's pioneering approach has ensured that livestock farmers have continually benefited from the very latest developments in forage mixtures.

In 2013 HF launched the revolutionary concept of iSeed 50® where HF GrassMax™ mixtures were treated with a fertiliser coating designed to increase seedling competitiveness and establishment by feeding the seed without feeding the surrounding sward.

For 2016, following extensive research, HF has taken this technology a stage further with a brand new fertiliser treatment called ProNitro®. ProNitro® is a nitrogen fertiliser coating for grass and clover where every individual seed is coated with nitrogen fertiliser in both fast and slow release forms.



Trials have shown that the nitrogen in ProNitro® encourages early root development improving access to other soil nutrients and consequently producing healthier, stronger plants. The same trials have demonstrated that by having nitrogen fertiliser in close proximity to the seed, the efficiency of use is up to 4 times greater than broadcast applications.



The benefit of ProNitro® is clear to see in both seed trays in the greenhouse and in the field where 4 weeks after sowing the density of control was rated at 4.2 compared to ProNitro® at 4.6

ProNitro® Innovation in Action from

HF
Seeds

and

DLF
SEEDS & SCIENCE

Grass and Fodder Crops THE CLOVER STORY

Clover, and particularly White Clover, has always been an important component in UK grass mixtures and with current fertiliser prices and a growing appreciation of the benefits that clover can bring, there is no doubt that clover and increasing clover levels in grass swards is becoming more important on livestock farms.

The two clover species in greatest use on UK farms are White Clover (*Trifolium repens*) and Red Clover (*Trifolium pratense*). Although both species share the same name, each has very different characteristics, uses and production potential. Despite these differences however, they both offer similar benefits to the farmer by providing high quality, protein rich forage and a means of reducing or even completely eliminating the need for nitrogen fertiliser through a process unique to most legumes called nitrogen fixation.

Nitrogen Fixation

Both Red and White Clover form a mutually beneficial relationship with a naturally occurring soil bacterium called *Rhizobium* which colonises the roots of the clover plant in small growths or nodules. The *Rhizobium* bacteria in these nodules have the ability to take in or 'fix' nitrogen from the air and to convert it into a form which can then be utilised for plant growth.

As a rough guide, although the amount of nitrogen fixed is directly proportional to the level of clover in the sward, a good clover and grass sward has the ability to produce the equivalent of up to 160 units N/acre/year (200 kgs N/ha/year).

Increased Intake

Clover is very palatable and animals will eat more of a grass and clover sward than they will of a grass only sward.

Better Livestock Performance

The combination of clover's higher feed value and increased intake ensures substantial improvements in animal performance when compared to grass only swards.

Forage Quality

Although the immediate attraction of clover to most farmers lies in its nitrogen fixing ability, the inclusion of clover in a sward also substantially improves forage quality and consequently animal performance.

The digestibility of clover is considerably higher than grass and its D-value declines at a much slower rate than Ryegrass as the season progresses. In addition the crude protein level in clover is approximately 50% higher than grass of equivalent digestibility and clovers generally have significantly higher contents of many of the major and minor minerals.

UNLOCKING THE BENEFITS OF CLOVER

Clover Type

Red and White Clover have very distinctive growth characteristics and behave very differently in the sward. These differences are explained in more detail on the following page but it is important to consider why clover is being included and to select the most appropriate species.

Seedbed and Fertility

The optimum soil pH for clover establishment is 6.0 – 6.5 and clover has a relatively high demand for both phosphate and potash to ensure good root development. Mixtures containing clover should be sown into a firm, fine seedbed and summer reseeds should be completed in time to allow plants to establish fully before the onset of winter.

Companion Grasses

Selection of the most appropriate companion grasses to suit the type of clover and the sward purpose is essential. Companion grasses need to complement the clover species in terms of their lifespan, sugar levels, growth habit and competitiveness.



Grass and Fodder Crops

RED AND WHITE CLOVER

RED CLOVER

Red Clover is one of the highest yielding forage species available and in recent years it has undergone a massive resurgence in popularity largely due to better varieties, improved ensiling techniques and equipment, increased demand for greater protein self-sufficiency and reduced dependence on purchased nitrogen fertiliser.

Red Clover is a short-lived perennial plant with a normal lifespan of two to four years. It has a tufted, upright growth habit from the crown of the plant which lies at ground level and it has a deep tap root. Consequently, as it does not have the creeping growth habit of White Clover, Red Clover is unable to spread and fill open areas in the sward. Its upright growth habit from the central crown restricts its use for grazing and it is essentially a crop for silage production which can be cut 3 to 4 times a year over its life expectancy of 3 full production years.

Red Clover can be grown on its own or in a mixture with suitable companion grasses. The advantage of using Red Clover in a mixture with grass rather than on its own, is that the companion grasses provide protection from damage and poaching and if high sugar grasses are used, the nutritional balance and ensiling process is much improved. The ideal companion grasses are modern Tetraploid Hybrid Ryegrasses and the new Advanced™ Grasses, both of which have a similar lifespan to Red Clover and are sufficiently aggressive to compete and survive in a sward with a high Red Clover content.

Red Clover Silage Facts

Although Red Clover is primarily a cutting species and lacks persistency under grazing, aftermaths can be grazed in the autumn by beef cattle or fattening lambs, however due to the high oestrogen content of some varieties, grazing with breeding animals should be avoided.

Red Clover should be sown at 6 – 7 kgs /acre on its own or at 3.5 – 4 kgs/acre when sown with Hybrid and Advanced™ Grasses (25% of the mixture by weight).

Digestibility	60 – 70%
Dry Matter Yield	10 – 15 t DM/ha (4 – 6 t DM/acre)
Dry Matter Content	25 – 30%
Energy (ME)	10.0 – 11.5 MJ/kg DM
Crude Protein	15 – 20%

WHITE CLOVER

White Clover is less productive than Red Clover but is much more persistent and is therefore used in medium to long term mixtures. It has a very high feed value and its leaves and flowers originate from creeping stems called stolons which grow very close to the ground allowing White Clover to withstand even hard grazing.

The ideal grass and White Clover sward is one where the clover content is sufficiently large to optimise both its nutritional and nitrogen fixing abilities but which at the same time allows a high yield from the companion grasses. Typically White Clover should average at around 30% ground cover throughout the year although this will vary seasonally from as little as 5% in the spring to as much as 60% in mid and late summer.

The table below shows the typical quality characteristics of White Clover compared to Perennial Ryegrass.

	White Clover	Perennial Ryegrass
Digestibility (D-value)	75 – 85	65 – 75
Crude Protein (%)	25 – 28	16 – 18
Dry Matter intake by sheep (kg DM / day)	1.9	1.4
Calcium content (%)	1.6	0.6
Phosphorous content (%)	0.18	0.16
Copper (parts per million)	10.0	6.5
Selenium (parts per 100 million)	0.6	0.2

White Clover is essentially a poor competitor with grass as it is susceptible to shading and consequently tall open types are much more suitable as companion grasses than denser varieties. Thus the Tetraploid Perennials with their tall open growth habit and high yields are the ideal companion grasses to allow White Clover to thrive. To achieve the optimum clover content in the sward White Clover should be included in a mixture at 1.0 – 1.5 kgs/acre (7% - 10% of the mixture by weight).

White Clover varieties are classified into three groups according to their leaf size and to ensure long term clover survival it is essential to match leaf size to the intended sward use.

Small Leaved

Small leaved varieties have a prostrate growth habit and are slow to establish but very persistent. They are ideal for close sheep grazing and will tolerate the poorer climatic and fertility conditions typical of upland areas.

Medium Leaved

Medium leaved varieties have a taller growth habit best suited to dual purpose management and mixed or cattle grazing.

Large Leaved

Large leaved varieties exhibit a tall erect growth habit and consequently are generally more suited to cutting than grazing.

Grass and Fodder Crops HF VARIETIES

All the varieties used in HF mixtures have been selected on the basis of their performance in trials throughout the UK. Information is collected from both in-house trials and from the various UK Recommended Lists of Grass and Clover Varieties thus ensuring that HF mixtures benefit from detailed up-to-date information on the latest varieties.



PERENNIAL RYEGRASS

Perennial Ryegrass is the most widely sown species in the UK. It forms the basis of most mixtures because of its combination of useful characteristics. Perennial Ryegrasses are grouped together according to their maturity or heading date.

Early Maturing Varieties

Early Perennial Ryegrass will start to grow up to two weeks earlier in the spring than later varieties. They are particularly useful for early growth for sheep grazing or in specialist silage mixtures being cut in early to mid May.

GENESIS

Genesis is exceptionally high yielding under both cutting and grazing with very good early spring growth. It also has very good late season growth for autumn grazing.

Intermediate Maturing Varieties

Intermediate Perennial Ryegrass varieties will head on average 7 to 10 days later than Early Perennials. They are high yielding and with their later heading offer greater flexibility of use making them well suited to a wide range of grassland enterprises.

SOLOMON

A high DNDF variety with outstanding performance in all respects, Solomon is recommended throughout the UK and is very high yielding under both cutting and grazing. Solomon also has exceptionally good spring and autumn growth, excellent sward density and very good forage quality. An excellent variety in all respects.

NIFTY

Recommended throughout the UK and an exceptional grazing variety, Nifty has very high grazing yields, excellent sward density and very good forage quality making it a superb new addition to the HF range.

PREMIUM

(only available as organic)

Premium is a high yielding variety under both cutting and grazing with very good mid-season forage quality. Very good ground cover and excellent disease resistance.

BOYNE

One of the highest yielding Perennial Ryegrasses on all three UK Recommended Lists, Boyne produces very high yields under both cutting and grazing with exceptional early spring growth leading to very high first cut yields. Grazing performance is also excellent both in early spring and throughout the year with high quality forage produced from a dense growth habit.

MAGICIAN (T)

(also available as organic)

Magician produces very high yields under both cutting and grazing. With exceptionally good early spring growth Magician produces very high grazing yields right through from spring to late summer and is high yielding for both first and second cut silage.

SEAGOE (T)

Another outstanding variety, Seagoe is recommended throughout the UK and produces very high yields under both cutting and grazing. Very good early spring and mid-summer growth with excellent forage quality.

GLENSTAL (T)

Glenstal is recommended for use throughout the UK and is very high yielding under both cutting and grazing. It also has very good early spring growth and good mid-summer and autumn growth.

Late Maturing Varieties

On average Late Perennial Ryegrass varieties head 10 - 14 days later than Intermediate Perennials. They are characterised by their more prostrate growth habit and provide very good density in the sward. They are high yielding with good persistence and will last for many years.

PASTOUR

(also available as organic)

A high DNDF variety and recommended for use throughout the UK, Pastour has very high yields under both managements. It has good spring growth and is particularly high yielding in mid and late summer. Very good resistance to Crown Rust and Drechslera.

ROMARK

(also available as organic)

Romark is a high DNDF variety and is particularly suited to grazing where it produces very high yields. Very good ground cover and excellent mid-season forage quality and digestibility. Romark is also very resistant to Crown Rust.

CANCAN

Cancan is a late heading diploid Perennial Ryegrass with a high DNDF content and very high yields under grazing. It has excellent sward density and very good forage quality making it a very useful variety in all types of mixture but particularly those with a bias towards grazing.

GLENROYAL

Recommended for both Scotland and Ireland, Glenroyal Late Perennial Ryegrass is an excellent dual purpose variety with particularly good yields under grazing. It is a very dense variety with good forage quality and exceptionally good mid and late season growth.

NEW FOR 2016

TODDINGTON

Toddington is recommended for both Scotland and England and Wales and is an excellent dual purpose variety which has very high grazing yields, excellent forage quality and very good mid and late season growth.

GLENVEAGH

Glenveagh produces high yields of good quality forage under both managements from a very dense sward. Very good mid and late season growth.

KINTYRE (T)

Kintyre shows outstanding performance under both cutting and grazing with consistently high yields throughout the growing season and very good forage quality at both first and second cut.

TWYMAX (T)

A high DNDF variety, Twymax is recommended for use throughout the UK and is an excellent dual purpose variety with high yields under both cutting and grazing. Good forage quality and high mid-season grazing yields from a very dense sward for a Tetraploid.

ASPECT (T)

A new variety in its first year of commercial availability, Aspect is recommended throughout the UK and produces very high yields under both managements. It has good forage quality at both first and second cuts and its very good grazing performance is maintained throughout the growing season.

GLENCAR (T)

A superb cutting variety bred in Ireland, Glencar has very high silage yields particularly at first cut where its outstanding early spring growth produces very high yields.

ALFONSO (T)

Recommended in Scotland and England and Wales, Alfonso is very high yielding under both cutting and grazing with outstanding early spring growth and good ground cover for a Tetraploid.

ITALIAN RYEGRASS

Italian Ryegrass is relatively short lived and is therefore only used in one to three year leys. It has a long growing season and produces heavy crops of hay or silage. It has very good early spring growth and combined with its relatively late heading date, it will produce a leafy silage cut after early grazing.

ALAMO

Alamo is one of the highest yielding Italians on UK Recommended Lists and has good forage quality relative to other Italian Ryegrass varieties.

FOX

Fox is a new and very high yielding Italian Ryegrass with good forage quality and good resistance to all the main diseases affecting grass.

KIGEZI I (T)

An excellent tetraploid variety with high yields, particularly at first cut, and good seasonal growth distribution. Good resistance to Crown Rust, one of the most damaging grassland diseases.

NEW FOR 2016

Grass and Fodder Crops

HF VARIETIES

HYBRID RYEGRASS

Hybrid Ryegrasses are bred from a cross between Italian and Perennial Ryegrass parents. The objective is to combine the production of Italian Ryegrass with the persistency and forage quality of Perennial Ryegrass and recent breeding advances have produced new varieties with these characteristics making them an ideal constituent in leys of up to five years duration.

BAHIAL (T)

A high yielding Tetraploid variety, Bahial has good seasonal growth, high D-value at both first and second cut and excellent resistance to all the main diseases affecting grass.

SOLID (T)

(also available as organic)

Solid is a true Perennial type Hybrid producing high yields with exceptionally good mid-season digestibility and forage quality. Its Perennial characteristics ensure outstanding persistence and sward density. Solid also has excellent general disease resistance with very good resistance to Crown Rust.

CITELIAC (T)

Citeliac produces massive yields under cutting combined with very good early spring growth and is an excellent variety where high yield is the main priority. It also has very good Crown Rust resistance.

FESTULOLIUM

The Festuloliums or Advanced™ Grasses result from a cross between fescues and Ryegrass and offer all the benefits of Ryegrass combined with the stress tolerance of Fescues.

HYKOR

An Advanced™ Tall Fescue, Hykor is extremely drought tolerant and although its potential for use in the UK is limited it offers a unique solution for drought conditions and could be considered as an alternative to Cocksfoot offering significantly better yields and higher quality.



LOFA

As an Advanced™ Hybrid Ryegrass, Lofa has the most general appeal for extensive use within UK grass mixtures. Behaving like a Hybrid Ryegrass but with very fast establishment, high yields, excellent stress tolerance and disease resistance it is an ideal component in 3 – 5 year mixtures and as a companion grass for Red Clover.

PERSEUS

Perseus is a variety of Advanced™ Italian Ryegrass but with much better persistence and combines high yields with good quality and high sugar levels. It has exceptional early spring growth and good disease resistance and with its unique set of characteristics it is also an ideal companion grass for Red Clover.

TIMOTHY

Timothy is an under-rated species as it brings many desirable features to a grass mixture. It has excellent early spring growth and is late heading, producing a large bulk of forage at first cut. It is very palatable, extremely winter hardy and thrives under cool wet conditions. Timothy is generally better suited to cutting, however its early spring growth can be very useful for early bite.

DOLINA

(also available as organic)

Recommended by all three testing authorities, Dolina is one of the highest yielding Timothies on UK Recommended Lists. It performs particularly well under grazing and has excellent early spring growth and very good yield distribution throughout the growing season.

PROMESSE

An excellent Timothy variety with high yields, good sward density and very good summer and autumn growth.

WHITE CLOVER

White Clover varieties are classified by leaf size. The smaller leaved varieties have a prostrate creeping growth habit and persist well under grazing whereas the larger leaved varieties are more erect and better suited to cutting.

VIOLIN

The highest yielding White Clover on the Recommended Lists for Scotland and England and Wales, Violin is an outstanding medium leaved variety with excellent whole season growth and good persistence under both cutting and grazing.

AVOCA

Avoca is an outstanding medium leaved variety recommended by all three testing authorities. It is extremely high yielding with excellent seasonal yield distribution and particularly good early spring growth compared to many other clover varieties. It is also very persistent under both cutting and grazing.

NEW FOR 2016

IONA

Recommended for use throughout the UK, Iona is a new medium leaved variety producing high clover yields. Excellent growth throughout the entire season with good persistency.

GALWAY

A small leaved variety with good yields and excellent persistence under hard grazing.

RED CLOVER

Red Clover is an aggressive and very high yielding but relatively short-lived species with a maximum life expectancy of around 3 years. It is primarily used in short term conservation mixtures. Resistance to Sclerotinia and Stem Eelworm both of which are very damaging to the persistency of Red Clover is an important factor to consider in the evaluation of varieties.

Due to an expected shortage of Red Clover seed in 2016, variety choice may be limited and subject to change.



RAJAH

(only available as organic)

An intermediate to late flowering variety, Rajah is a Diploid variety with high yields, good persistency and general disease resistance. Rajah also shows good resistance to both Sclerotinia and Stem Eelworm.

AMOS (T)

A very high yielding Tetraploid variety with intermediate earliness. Amos has good general disease resistance relative to other varieties but has much better persistency and maintains high yields over a longer period.

MAGELLAN (T)

A Tetraploid variety, Magellan produces very high yields of protein rich forage particularly in the second and third years.

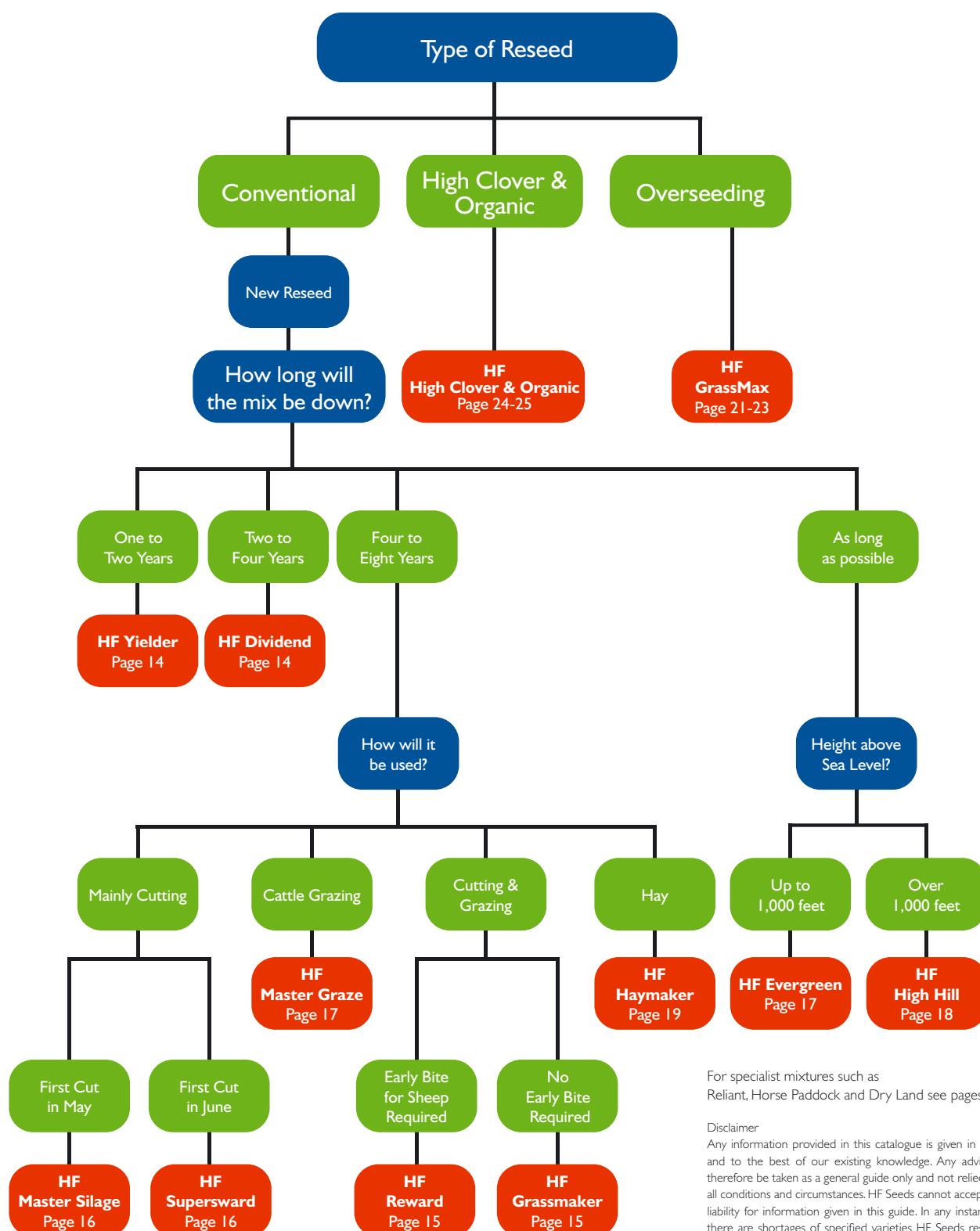
CORVUS

High annual yields with good ground cover and persistency over three harvest years.

Grass and Fodder Crops MIXTURE SELECTOR

HF mixtures are designed and formulated to meet specific sward uses. Significant differences between mixtures are not always obvious but even small differences can change the way in which the final sward behaves. Selection of the wrong mixture will inevitably mean that the sward will not perform up to expectations simply because it is the wrong mix for the job.

The HF mixture selector is designed to help answer many of the common questions in mixture selection, however it is not possible to cater for every situation and if in doubt contact HF Seeds for further advice.



For specialist mixtures such as Reliant, Horse Paddock and Dry Land see pages 18 - 20

Disclaimer

Any information provided in this catalogue is given in good faith and to the best of our existing knowledge. Any advice should therefore be taken as a general guide only and not relied upon for all conditions and circumstances. HF Seeds cannot accept any legal liability for information given in this guide. In any instance where there are shortages of specified varieties HF Seeds reserves the right to substitute equivalent varieties.

Grass and Fodder Crops WESTERWOLDS RYEGRASS

Although a high proportion of the grass in arable and mixed farming areas is still sown in the spring often under cereals, in true grassland areas there is an increasing trend towards replacing grass in the traditional summer reseed months of August and September.

The practice of summer reseeding is popular as it allows one or perhaps two cuts of silage to be taken before the field is ploughed and then effectively lost to production while the new grass is establishing and provided the new grass has time to fully establish before the onset of winter, the field can be brought into full production, invariably for silage, in the following year. There can also be a significant benefit in terms of the weed burden and control when reseeding in summer as opposed to the spring.

However whilst there is no doubting the potential benefits of a summer reseed, these benefits are completely cancelled out if circumstances or weather conditions prevent or delay the reseed taking place. A missed reseed can mean a poor field of grass is carried forward for another year and a delay can result in insufficient time for establishment before the onset of winter and an increased risk of failure. In both cases one of the key objectives of a fully established and highly productive sward for the following year is lost.

Reseeding in the spring with a full mix containing Westerwolds Ryegrass can represent an alternative to a summer reseed and can produce substantial bulk for cutting or grazing in the year of sowing. Westerwolds Ryegrass is a fast growing, short lived species which is added to a full mixture with the specific purpose of providing bulk at the same time as the full mix is establishing. It is cheap, highly effective in terms of bulk production and as it comes ready mixed, sowing can be completed in a single operation. It is included in the mixture purely for short term production and is designed to die out in the year of sowing after an initial flush of growth. Westerwolds Ryegrass can be added to any HF mixture and is included at 20% by weight taking the total sowing rate to 17 – 18 kgs/acre.



‘We have a mixed farm in challenging conditions at 800 feet above sea level and very heavy ground. I have found that HF mixtures are high yielding and produce a very dense and persistent sward capable of withstanding everything we throw at it. I am very pleased with their performance’

Robert Wilson, South View Farm, Ellonby, Penrith Cumbria



‘HF mixtures give us good season long grazing on dense swards and really high quality silage in the pit. We usually make silage in the 1st week of June and have been very pleased with both the quality and the yield of our mixtures over many years’

Drew Thomson, winner of both the Norgrass and the National Silage Competitions in 2015, Middleton of Potterton, Aberdeen, Aberdeenshire

The advantages of adding Westerwolds Ryegrass to a full grass seed mixture are as follows:

- **It will provide production for cutting or grazing in the year of sowing and can be grazed in 6 – 8 weeks or cut 10 – 12 weeks after sowing**
- **It will provide rapid regrowth for grazing or subsequent cuts**
- **A spring reseed with Westerwolds will produce an estimated 20 – 25 tonnes of forage per acre in the year of sowing**
- **It is delivered ready mixed and sowing is completed in a single operation**
- **It provides a nurse crop to the establishing full mix protecting against adverse conditions and helping to compete against weeds**

As Westerwolds Ryegrass is an aggressive fast growing species it is essential that it dies out in the year of sowing. Plants surviving into the second year will compete with and ultimately damage the final sward. Consequently mixtures containing Westerwolds should always be sown before the end of June and their autumn management should include hard grazing to ensure the Westerwolds component is completely eradicated before the following spring.



The addition of Westerwolds Ryegrass can provide much needed bulk in the year of sowing

Grass and Fodder Crops THE MIXTURES

ONE TO TWO YEAR MIXTURE

HF YIELDER

A highly productive one to two year mixture for intensive cutting or grazing. Suitable for undersowing or direct seeding although due to the vigorous growth of Italian Ryegrass nitrogen levels should be reduced where this mixture is to be undersown.

HF Yielder is formulated to produce bulky crops of highly digestible and palatable herbage with excellent early and late season growth but should not be relied on for full production beyond two years.

FOX

Italian Ryegrass

KIGEZI I

Tetraploid Italian Ryegrass

PERSEUS

Advanced™ Italian Ryegrass

RECOMMENDED SOWING RATE

12 - 13 KG/ACRE (30 - 32 KG/HECTARE)

- Optimum cutting date based on NIAB heading dates in central England - last week in May
- Balanced proportions of varieties to produce highly digestible and palatable forage for cutting or grazing
- Includes Fox and Kigezi I Italian Ryegrass, two of the highest yielding Italians on the current Recommended List of grass and clover varieties for England and Wales
- Contains the Advanced™ Italian Ryegrass variety Perseus, included for its very high yields, stress tolerance and excellent spring growth
- Excellent early spring growth
- Very high first cut yields
- High sugar content aids rapid silage fermentation
- Better yield and herbage quality due to very good Mildew resistance
- Rapid recovery for second and subsequent silage cuts
- Responds well to fertiliser input

TWO TO FOUR YEAR MIXTURE

HF DIVIDEND

A mixture designed for intensive use and maximum yield over two to four full production years. Suitable for intensive cutting and/or grazing and the standard mix can be undersown or direct seeded. An option of replacing the White Clover with Red Clover is available if required but this option is not suitable for undersowing.

BAHIAL

Tetraploid Hybrid Ryegrass

SOLID

Tetraploid Hybrid Ryegrass

PERSEUS

Advanced™ Italian Ryegrass

LOFA

Advanced™ Hybrid Ryegrass

GLENSTAL

Tetraploid Intermediate Perennial Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

HF CUTTING CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

12 - 14 KG/ACRE (30 - 35 KG/HECTARE)

- Optimum cutting date based on NIAB heading dates in central England - mid May
- Specially formulated with the correct proportions of the highest yielding varieties for maximum yield and persistency over four full production years
- Includes the new Advanced™ Italian and Hybrid Ryegrass varieties Perseus and Lofa combining high yields with good forage quality, persistency and excellent stress tolerance
- Specially formulated for high yields under both cutting and grazing
- Consistently the highest yielding mixture in all HF trials
- Includes a high proportion of Hybrid Ryegrass which combines the yield of Italian Ryegrass with the quality and persistency of Perennial
- Exceptional early spring growth
- Suitable for early bite followed by first cut silage as relatively late heading and good D-values allow delayed cutting and high silage yields at 67D
- High Tetraploid content for grazing palatability and high sugar levels for rapid silage fermentation
- Blend of varieties to ensure good overall disease resistance
- Contains HF's Cutting Clover blend consisting of highly productive clover varieties for maximum performance in competitive, high yielding swards
- Red Clover option available

OVERSEED WITH

GrassMax
CUT



'Grass silage is the backbone of our feeding system and we need consistently high yielding swards of quality grass to feed our 300 cows and 350 young stock. Fields are usually

down for 3 or 4 years, but occasionally we leave a field for a 5th year. We take 2 or 3 cuts of silage with aftermath grazing for the heifers. HF mixtures suit our system really well, they are reliable and hardy enough to withstand both our cold winters and several slurry applications'

Ronald Barron, Darrahill Farm, Udney, Aberdeenshire



Grass and Fodder Crops THE MIXTURES

'Grass is a very important part of our farming system. We have recently used HF Mastergraze and along with better monitoring of grass growth our performance from grazed grass has improved and the regrowth is amazing. HF Grassmaker has also served us very well over many years for conservation and is very persistent. We have tried others but they don't compete with HF'

Gareth and Euron Roberts, Plasheaton Farm, Denbigh, Clwyd



'Persistency and performance is what I look for in my grass seed mixtures and I get both from HF Seeds. All our grass has sheep running on it through the winter and early spring so fields have to be hardy, dense and also be able to bulk up in time for big cuts of silage for the fattening cattle and cows. Good sound technical advice is part of the HF package and is certainly very useful'

Ewan Cheape, Letham Farm, Glenfarg, Perthshire



DUAL PURPOSE MIXTURES

HF

REWARD

A medium term, dual purpose rotational mixture lasting from four to eight years and suitable for grazing and/or cutting. HF Reward is formulated to provide excellent spring growth for early bite for ewes and lambs or for high silage yields at relatively early cutting dates.

GENESIS

Early Perennial Ryegrass

GLENSTAL

Tetraploid Intermediate Perennial Ryegrass

BOYNE

Intermediate Perennial Ryegrass

SOLOMON

Intermediate Perennial Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

ROMARK

Late Perennial Ryegrass

PASTOUR

Late Perennial Ryegrass

ASPECT

Tetraploid Late Perennial Ryegrass

HF DUAL PURPOSE CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Optimum cutting date based on NIAB heading dates in central England - mid May
- Specially formulated for a high DNDF content
- Improved for 2016 with the addition of Aspect Tetraploid Late Perennial Ryegrass which is recommended throughout the UK and has high yields under both cutting and grazing combined with excellent spring growth
- Contains a high proportion of Solomon, a high DNDF variety which is very high yielding under both cutting and grazing with exceptionally good spring growth and excellent sward density
- Exceptional early spring growth for early bite for ewes and lambs
- Superb grazing performance from Boyne, Aspect, Solomon and Romark
- Good sward density to resist poaching and withstand heavy grazing pressure
- Contains HF's unique Dual Purpose White Clover blend designed to achieve maximum clover content and production in a sward which is likely to be grazed in early spring and late summer in addition to being cut for silage

OVERSEED WITH

GrassMax™
DUAL PURPOSE

HF

Grassmaker

A medium term dual purpose mixture lasting for four to eight years suitable for grazing and/or cutting specially designed to produce very dense swards and high yields of leafy silage in later areas or at later cutting dates than HF Reward.

SOLOMON

Intermediate Perennial Ryegrass

BOYNE

Intermediate Perennial Ryegrass

GLENSTAL

Tetraploid Intermediate Perennial Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

TODDINGTON

Late Perennial Ryegrass

ROMARK

Late Perennial Ryegrass

PASTOUR

Late Perennial Ryegrass

ASPECT

Tetraploid Late Perennial Ryegrass

DOLINA

Timothy

PROMESSE

Timothy

HF DUAL PURPOSE CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Optimum cutting date based on NIAB heading date in central England — third week in May
- Specially formulated for a high DNDF content and top quality forage with high proportions of the top DNDF varieties Solomon, Romark and Pastour
- Improved for 2016 with the addition of Aspect Tetraploid Late Perennial Ryegrass which is recommended throughout the UK and has high yields under both cutting and grazing combined with excellent spring growth
- A very dense sward able to withstand poaching and hard grazing
- Good early spring growth without early heading for high first cut yields of quality forage
- Contains Timothy included for its high yields, palatability and excellent spring growth without early heading
- Very good resistance to the main diseases affecting grass
- Clover content based entirely on HF's unique blend of highly productive and persistent clover varieties specially designed production, herbage quality and livestock performance in a dual purpose mixture

OVERSEED WITH

GrassMax™
DUAL PURPOSE

INTENSIVE SILAGE MIXTURES

HF

MASTER SILAGE

A medium term silage mixture specially designed for intensive three or four cut silage systems.

LOFA

Advanced™ Hybrid Ryegrass

BAHIAL

Tetraploid Hybrid Ryegrass

SOLOMON

Intermediate Perennial Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

TODDINGTON

Late Perennial Ryegrass

PASTOUR

Late Perennial Ryegrass

TWYMAX

Tetraploid Late Perennial Ryegrass

ASPECT

Tetraploid Late Perennial Ryegrass

RECOMMENDED SOWING RATE

13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Optimum cutting date based on NIAB heading dates in central England - mid May
- Specially formulated for a high DNDF content and top quality forage
- Contains a high proportion of Solomon which is very high yielding under cutting with exceptionally good spring growth and high first cut yields from a very dense sward
- Specially formulated to maximise silage yields with the highest yielding varieties under cutting on the current Recommended List of grass varieties for England and Wales
- High sugar yield per acre ensures maximum feeding value, excellent palatability and rapid silage fermentation
- Excellent spring growth for high silage yields at early first cut dates
- Superb forage quality and D-value
- Holds digestibility well after heading and in mid season giving flexibility of cutting date
- Varieties chosen for yield and persistency under conservation and rapid regrowth after cutting
- Very good general disease resistance and particularly good resistance to Crown Rust from Seagoe and Toddington which have the highest resistance rating on the current Recommended List for England and Wales

OVERSEED WITH

GrassMax
CUT

HF

Supersward

A more traditional silage mixture of medium term duration for two cut systems where the first cut is taken in late May or early June.

SOLOMON

Intermediate Perennial Ryegrass

BOYNE

Intermediate Perennial Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

TODDINGTON

Late Perennial Ryegrass

PASTOUR

Late Perennial Ryegrass

TWYMAX

Tetraploid Late Perennial Ryegrass

ASPECT

Tetraploid Late Perennial Ryegrass

DOLINA

Timothy

PROMESSE

Timothy

HF CUTTING CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Optimum cutting date based on NIAB heading dates in central England - last week in May
- Specially formulated for a high DNDF content and top quality forage.
- High sugar yield per acre ensures maximum feeding value, excellent palatability and rapid silage fermentation
- Varieties specially selected for high yields under conservation and later cutting dates
- Very good spring growth without early heading for high yields of quality silage at later cutting dates
- Timothy content and later heading makes the mixture an ideal choice for colder and more exposed sites
- Excellent forage quality and mid season D-value
- Very good resistance to all the major diseases affecting grass including Crown Rust and Drechslera
- Clover content based entirely on highly productive large leaved varieties suited to conservation management to ensure clover production and survival in a two cut silage system

OVERSEED WITH

GrassMax
CUT



'My recent investment in a milk robot has proved successful and now the emphasis is on maximising milk yield from forage which is the key to long-term profitability. I used an HF mixture for the first time around 8 years ago and it is still performing really well and our 2015 autumn reseed established beautifully with an excellent clover content'

Steven McNeill, Aughnacloy, Co Tyrone

Grass and Fodder Crops THE MIXTURES

'I use a range of HF mixtures across the different soils and locations that I farm, depending on what the intended end use is, because they consistently do very well. This year I've had an amazing yield of 27 bales an acre from 2 cuts. Good sward density, high digestibility and consistently big yields all contribute to why I choose HF Seeds'

George Wilson, Turtory, Bridge of Marnoch, Huntley, Aberdeenshire



'We have bought HF seeds since David Edwards took them on 19 years ago. The quality has been consistent every year. We have used different mixtures depending on the requirement from our sheep and haylage cuts. Our newest ley is HF Evergreen which is being grazed. It is thick with very good clover content. So yet again we are very happy with HF'

Griff Williams, Cefnleisiog, Dinas, North Wales



INTENSIVE GRAZING

HF MASTERGRAZE

Specially designed for intensive cattle grazing. Based on short growing, high tillering and long lived grasses and producing a very dense, highly productive sward of great persistence. Suitable for medium to long term use.

BOYNE
Intermediate Perennial Ryegrass
SOLOMON
Intermediate Perennial Ryegrass
SEAGOE
Tetraploid Intermediate Perennial Ryegrass
TODDINGTON
Late Perennial Ryegrass
PASTOUR
Late Perennial Ryegrass
ROMARK
Late Perennial Ryegrass
CANCAN
Late Perennial Ryegrass
ASPECT
Tetraploid Late Perennial Ryegrass
HF GRAZING CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Specially formulated for a high DNDF content and top quality, palatable forage with high proportions of top DNDF varieties included for their excellent forage quality and overall grazing performance
- Includes the high DNDF variety Solomon which is very high yielding under grazing. Solomon also produces a very dense sward and has excellent early and late season growth
- Contains varieties specially selected for their high grazing yields, very good sward density and excellent full season D-value
- Extreme sward density able to withstand heavy grazing and poaching in high rainfall areas
- Based on a unique blend of Perennial Ryegrass varieties designed to provide predictable grazing yield and quality throughout the entire season
- Formulated to have grass at the right stage for grazing at cattle turnout
- Very good general disease resistance and in particular to Crown Rust to maintain both yield and grazing palatability
- Contains the best possible White Clover varieties for production and persistence under intensive cattle grazing

OVERSEED WITH **GrassMax**
GRAZE

PERMANENT MIXTURE

HF Evergreen

A versatile permanent mixture with extreme sward density consisting of a blend of grasses and clovers that will produce a well balanced sward giving even growth of quality herbage for many years.

GENESIS
Early Perennial Ryegrass
GLENSTAL
Tetraploid Intermediate Perennial Ryegrass
BOYNE
Intermediate Perennial Ryegrass
SOLOMON
Intermediate Perennial Ryegrass
SEAGOE
Tetraploid Intermediate Perennial Ryegrass
CANCAN
Late Perennial Ryegrass
ROMARK
Late Perennial Ryegrass
ASPECT
Tetraploid Late Perennial Ryegrass
DOLINA
Timothy
PROMESSE
Timothy
HF DUAL PURPOSE CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
14 - 15 KG/ACRE (35 - 37 KG/HECTARE)

- Contains the high DNDF varieties Solomon, Cancan and Romark included for their grazing performance, sward density and forage quality
- Includes the high DNDF variety Solomon which is very high yielding under both cutting and grazing with very good first cut yields. Solomon also produces a very dense sward and has excellent early and late season growth
- Superb early spring growth from later heading varieties and Timothy, ensures early bite for ewes and lambs but also high yields of quality fodder at first cut
- Very persistent and winter hardy varieties for longevity of the sward
- Specially formulated for extreme sward density
- Suitable for both hay or silage as well as grazing
- Very good resistance to all the major diseases affecting grass including Crown Rust and Drechslera
- Contains Timothy included for its high yields, palatability and excellent spring growth without early heading
- High inclusion rate of HF's unique Dual Purpose Clover blend designed to maximise the clover content in the sward for production, palatability and livestock performance

OVERSEED WITH **GrassMax**
GRAZE

Grass and Fodder Crops THE MIXTURES

SPECIALIST MIXTURES

HF

High-hill

A long term hill mixture specially designed for sheep grazing and to suit the harsher conditions of upland pastures. Ideal for reseeded hills or reclaiming marginal land. Contains grasses suited to the poorer soils and shorter growing season typical of hill ground.

BOYNE

Intermediate Perennial Ryegrass

SOLOMON

Intermediate Perennial Ryegrass

TODDINGTON

Late Perennial Ryegrass

CANCAN

Late Perennial Ryegrass

TWYMAX

Tetraploid Late Perennial Ryegrass

DOLINA

Timothy

PROMESSE

Timothy

MAXIMA

Creeping Red Fescue

HF GRAZING CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

14 - 16 KG/ACRE (35 - 40 KG/HECTARE)

- Based on later heading varieties to ensure good growth in later areas before the production of seed heads
- Early bite provided by a high Timothy content and a high proportion of grazing tolerant Perennial Ryegrass varieties
- Very good winter hardiness for longevity under harsher upland conditions
- Varieties selected for sward density to resist poaching
- A high proportion of persistent Late Perennials ensures good production over many years
- The unique combination of grazing Perennial Ryegrasses produces short dense growth ideal for grazing
- Will also provide a cut of hay or silage if required
- Creeping Red Fescue with its creeping growth habit binds the sward together and aids recovery after poaching or over-grazing
- All ingredients selected for cold and snow tolerance
- High content of HF's unique Grazing Clover blend specially designed for production and persistency in an upland situation

OVERSEED WITH

GrassMax
GRAZE

HF

DryLAND

A specialist mixture for very dry conditions using deep rooted grasses with excellent resistance to drought. Formulated using species not commonly found in UK agricultural mixtures, HF Dry Land is designed to produce fodder in extremely dry situations where conventional mixtures are likely to fail.

KORA

Tall Fescue

HYKOR

Advanced™ Tall Fescue

LOFA

Advanced™ Hybrid Ryegrass

DONATA

Cocksfoot

ALFONSO

Tetraploid Late Perennial Ryegrass

RECOMMENDED SOWING RATE

15 KG/ACRE (37 KG/HECTARE)

- A unique solution to fodder production in very dry conditions
- Contains species specially selected for their drought and stress tolerance in particular Hykor Advanced™ Tall Fescue and Lofa Advanced™ Hybrid Ryegrass
- Also includes Tall Fescue a species used for forage production in hot dry countries
- High sugar varieties with good forage quality used to balance the poorer quality of the Tall Fescue and Cocksfoot
- Suitable for cutting or grazing
- Contains the unique Late Tetraploid Perennial Ryegrass variety Alfonso, included to improve palatability and for its drought tolerance, sward density and persistency
- Excellent disease resistance particularly to Crown Rust which can be a major problem in hot, dry conditions and which can seriously affect both yield and palatability



'On a sheep farm in the Scottish borders we need tough mixtures that will last the pace but still produce quality grazing and a good bulky cut of silage. HF High Hill with its

later heading dates suits our area, producing a dense and persistent sward full of clover that grazes really well but still allows us to take a cut of good quality silage'

Scott Lambie, Ashcraig Farming Partnership, Bridgeland Farm, Selkirk and Acreknowe Farm, Hawick, Scottish Borders



SPECIALIST MIXTURES

HF

HAYMAKER

A modern mixture for traditional hay making specially designed to produce a large bulk of the type of forage typically required for hay.

BOYNE

Intermediate Perennial Ryegrass

SOLOMON

Intermediate Perennial Ryegrass

PASTOUR

Late Perennial Ryegrass

TODDINGTON

Late Perennial Ryegrass

DOLINA

Timothy

PROMESSE

Timothy

LAURA

Meadow Fescue

HF DUAL PURPOSE CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

13 - 14 KG/ACRE (32 - 35 KG/HECTARE)

- Specially designed to produce top yields of easily made hay
- Contains the high DPDF varieties Solomon and Pastour included for their forage quality and high conservation yield
- Varieties selected on the basis of their growth pattern and maturity to provide the right sward characteristics for quality hay production
- High Timothy content and no Tetraploids for ease of hay-making
- Based on Intermediate and Late Perennial Ryegrass with no Early Perennial Ryegrass which heads far too early for hay production
- Good sward density for a mixture with a high Timothy content
- Varieties selected to provide good summer and late season grazing
- Good winter hardiness and persistency ensures consistent bulk over many years

HF

HORSE Paddock

A custom built mix using species and varieties specially selected to produce a very dense and hard wearing sward suitable for horses and ponies. Designed to provide palatable grazing throughout the growing season but also suitable for hay production.

SOLOMON

Intermediate Perennial Ryegrass

CANCAN

Late Perennial Ryegrass

GLENROYAL

Late Perennial Ryegrass

DOLINA

Timothy

PROMESSE

Timothy

MAXIMA

Creeping Red Fescue

RECOMMENDED SOWING RATE

15 KG/ACRE (37 KG/HECTARE)

- Based on the densest Perennial Ryegrass and Timothy varieties for an exceptionally dense damage resistant sward
- High Timothy content ideal for horses and ponies
- Formulated to provide attractive but low sugar forage to help minimise the risk of laminitis
- Designed to produce palatable grazing throughout the entire season
- Creeping Red Fescue with its creeping growth habit binds the sward together and quickly repairs sward damage caused by hooves
- Offers the option of horse hay production if required

Grass and Fodder Crops THE MIXTURES

LANDSCAPING

HF Multi Purpose LANDSCAPER

A mixture specially designed for all situations where a relatively hard wearing, low maintenance grass sward with an attractive appearance is required. This mix is ideal for river banks, roadside verges, orchards, caravan sites, headlands round fruit fields, paths etc and any other situations where low maintenance cover is required.

ROMARK

Late Perennial Ryegrass

MAXIMA

Creeping Red Fescue

RECOMMENDED SOWING RATE
25 KG/ACRE (62 KG/HECTARE)

- Suitable for all low maintenance situations where an attractive appearance is required
- Although the sowing rate is higher than standard agricultural mixtures it is considerably less than the rate required by a true amenity mix to achieve the same effect
- Produces a hard wearing and attractive sward with a good dark green colour
- Designed for situations where an attractive appearance is required but where the circumstances do not justify the expense of a true amenity mix
- Specially formulated with a high proportion of Creeping Red Fescue for extreme sward density and wear tolerance



SHEEP FEED MIXTURES

HF CC

A highly productive catch cropping mix including white turnips designed to produce autumn grazing for sheep and fattening lambs.

ALAMO

Italian Ryegrass

EMERALD

Forage Rape

GREEN GLOBE

White Turnip

RECOMMENDED SOWING RATE
9 KG/ACRE (22 KG/HECTARE)

HF CD

A highly productive catch cropping mix similar to HF CC but without white turnips.

ALAMO

Italian Ryegrass

EMERALD

Forage Rape

RECOMMENDED SOWING RATE
9 KG/ACRE (22 KG/HECTARE)

HF CC and CD are balanced mixtures designed to produce an Italian Ryegrass sward with a brassica cover crop thereby providing both autumn grazing from the combination of species and winter and early spring grazing from the Italian Ryegrass. Inevitably this compromise will not produce the short term bulk of a single brassica but will provide a lower level of keep for a longer period of time. In the management of these mixtures it should be remembered that both rape and turnips are aggressive species and if allowed to grow too tall they can smother the Italian Ryegrass. These mixtures should therefore be grazed early to allow the Italian to thrive.

Grass and Fodder Crops OVERSEEDING

Every grassland farmer is well aware of the vigour and high level of production that can be achieved from a new reseed and also that inevitably through time, the sown grasses begin to disappear and the sward thins out and production suffers. The decline of sown species is influenced by many different factors but on average by the time grass reaches 7 or 8 years old, only around 60% of the sown species remain and 40% of the sward is either bare ground or occupied by weed grasses. This deterioration not only affects yield but also has a significant effect on palatability, forage quality, spring growth and the overall response to fertiliser inputs. When these are added together, the effect on both animal performance and the overall financial return is substantial and a sward with 40 – 50% bare ground or weed grass content can mean a loss of up to £300 per acre per year in feed value.

Recognising the need to maintain a high proportion of sown species in older grass and that a full reseed is not always practical, HF Seeds has developed the GrassMax™ system of overseeding which presents a real opportunity to restore production in tired or damaged swards to newly sown levels without the expense or disruption of a full reseed. The GrassMax™ system of overseeding can also be used to introduce or increase clover levels in existing swards.

The key to successful overseeding lies in ensuring that the newly sown plants are capable of competing with the existing grass and that the germinating seedlings have sufficient vigour to establish successfully in what can be a very competitive environment. Increasing the competitiveness of the establishing plants can be achieved in three ways each of which has a cumulative effect in ensuring success.

Minimise Competition from the Existing Sward

When the existing sward is growing strongly there is obviously more competition for the establishing seedlings. Consequently the timing of the actual overseeding operation and the subsequent fertiliser treatment are important factors to consider. The objective should be to find a window during the season when the existing sward is short and is not growing strongly. Ideal conditions are provided after a hard graze or immediately after the last silage cut of the season. No fertiliser should be applied for at least 15 days after the overseeding operation.

Use a Mixture Designed for Overseeding

Large seeded grasses are more competitive in their establishment and all the HF GrassMax™ mixtures are comprised of Tetraploid Hybrid and Perennial Ryegrasses and Advanced™ Grasses specially selected for their establishment vigour. The use of these large seeded, aggressively establishing grasses significantly increases their ability to compete with the existing sward.

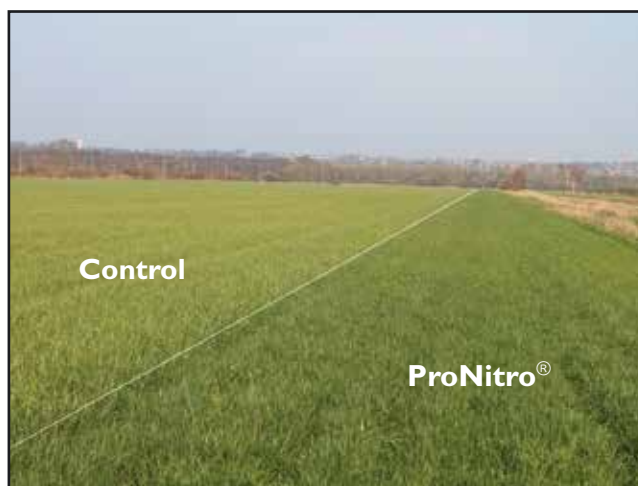
Use Mixtures Treated with ProNitro®

NEW FOR 2016

Although conventional broadcast fertiliser application will help to increase the establishment vigour of the new seedlings, its growth promotion effect on the existing sward is much greater and competition is increased to a level which can overwhelm the establishing seedlings.

ProNitro®

For 2016 all HF GrassMax™ mixtures are available with the brand new and revolutionary ProNitro® seed treatment where every individual seed is coated with nitrogen fertiliser in both fast and slow release forms (see page 7). This unique targeted fertiliser concept feeds the sown seeds and not the surrounding sward and dramatically improves establishment vigour at the most crucial stage in the overseeding process. Extensive trials have shown that the uptake of ProNitro® fertiliser is up to 4 times more effective than broadcast applications and have demonstrated substantial gains in the number of plants established and in both root and shoot development.



The benefit of ProNitro® is clear to see in both seed trays and the field with faster establishment, improved root systems, stronger plants and a denser sward

Grass and Fodder Crops OVERSEEDING

OVERSEEDING MIXTURES

HF

GrassMaxTM
CUT

A mixture specially designed for overseeding fields which will be mainly cut for silage.

SOLID

Tetraploid Hybrid Ryegrass

LOFA

AdvancedTM Hybrid Ryegrass

SEAGOE

Tetraploid Intermediate Perennial Ryegrass

HF CUTTING CLOVER BLEND

White Clover

RECOMMENDED SOWING RATE

10 KG/ACRE (25 KG/HECTARE)

- Only contains large seeded, aggressively establishing grasses for their establishment vigour and ability to compete in an existing sward
- Contains Lofa AdvancedTM Hybrid Ryegrass included for its high conservation yields, forage quality and fast regrowth
- Very good forage quality from Solid in particular
- Varieties chosen for good spring growth to ensure high yields at first cut
- Contains a high proportion of HF's unique Cutting Clover Blend to ensure good clover production and survival under intensive silage management
- Grasses specially selected for their high sugar content to balance the relatively low sugar levels in White Clover
- No clover option available on request

HF

GrassMaxTM
CUT
WITH RED CLOVER

A specialist overseeding mixture containing a high level of Red Clover designed to introduce both new grass and Red Clover into silage swards. This mix can also be used to prolong the life of existing Red Clover swards provided Eelworm is not a problem

CITELIAC

Tetraploid Hybrid Ryegrass

LOFA

AdvancedTM Hybrid Ryegrass

HF RED CLOVER BLEND

Red Clover

RECOMMENDED SOWING RATE

10 KG/ACRE (25 KG/HECTARE)

- Only contains large seeded aggressively establishing grasses for their establishment vigour and ability to compete in an existing sward
- Contains a high proportion of Lofa AdvancedTM Hybrid Ryegrass an ideal companion grass for Red Clover, included for its high conservation yields, forage quality and fast regrowth
- 30% Red Clover content to ensure a good plant population in the overseeded sward
- Very good forage quality from Solid in particular
- The high sugar content of the Hybrid Ryegrasses is the perfect match to balance the relatively low sugar levels in Red Clover



'I have used HF Seeds for many years and have found that they do exceptionally well in all sorts of soil types and growing conditions. I have used many of the HF mixtures including HF11 and Super Silage and also GrassMax Graze for overseeding, all with great results. I am convinced that HF quality helps maximise the milk yields through my robotic milking system'

Rennick Thompson, Springfield Farm, Bigrigg, Egremont, Cumbria



Overseeding GrassMaxTM Graze at Inverbrora Farm, Brora, Sutherland

Guidelines for Successful Overseeding

Field Preparation

- Remove all surplus grass growth by cutting or hard grazing
- Scarify the area in opposite directions using a wire tine grass scarifying harrow

Sowing

- Sow at the same time as scarifying with up to 10 kg/acre (25 kg/hectare) of the appropriate **GrassMaxTM** mixture
- Where ProNitro[®] treatment is used, as the fertiliser coating increases the weight of the seed, it is necessary to increase the treated seed sowing rate to ensure the number of actual seeds remains at the target level. In 2016 the unique formulation of ProNitro[®] increases the weight of treated seed by 50%. To ensure that the same number of seeds sown per unit area is maintained it is therefore necessary to increase the sowing rate of treated seed by 50% taking the standard ProNitro[®] sowing rate to 15 kgs/acre (37 kgs/ha)
- Roll immediately after sowing to consolidate the ground, conserve moisture and ensure good seed to soil contact



A typical sward before overseeding

Grass and Fodder Crops OVERSEEDING



OVERSEEDING MIXTURES

HF
GrassMax™
DUAL PURPOSE

A mixture specially designed for overseeding fields which will be both cut and grazed.

LOFA
Advanced™ Hybrid Ryegrass
SEAGOE
Tetraploid Intermediate Perennial Ryegrass
KINTYRE
Tetraploid Late Perennial Ryegrass
TWYMAX
Tetraploid Late Perennial Ryegrass
HF DUAL PURPOSE CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
10 KG/ACRE (25 KG/HECTARE)

- Specially formulated with high sugar varieties to improve the sugar content of existing swards
- Only contains large seeded aggressively establishing grasses for their establishment vigour and ability to compete in an existing sward
- Contains Lofa Advanced™ Hybrid Ryegrass included for its high conservation yields, forage quality and fast regrowth
- Based on grass varieties with high yields under both cutting and grazing
- Very good resistance to all the main grass diseases
- Contains a high proportion of HF's unique Dual Purpose Clover Blend which is based on the most productive varieties and designed to achieve the maximum clover content and persistency under both cutting and grazing
- No Clover option available on request

HF
GrassMax™
GRAZE

A mixture specially designed for overseeding fields which will be predominantly grazed.

SEAGOE
Tetraploid Intermediate Perennial Ryegrass
TWYMAX
Tetraploid Late Perennial Ryegrass
ALFONSO
Tetraploid Late Perennial Ryegrass
HF GRAZING CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
10 KG/ACRE (25 KG/HECTARE)

- Specially formulated with high sugar varieties to improve the sugar content of existing swards
- Varieties specially selected for their grazing yields including Seagoe one of the highest yielding Tetraploid Perennial Ryegrasses on all three UK Recommended Lists
- High sugar yields ensure excellent palatability and improved animal performance
- 100% Tetraploid grasses which are ideal for overseeding as they have large seeds and are aggressive establishers
- Based entirely on Perennial Ryegrass varieties with the highest grazing yields on UK Recommended Lists
- Very good Crown Rust resistance
- Contains a high proportion of HF Grazing Clover blend containing varieties specially selected for their production and persistence under grazing
- No Clover option available on request

Timing

- With untreated seed, to ensure that competition from the existing sward is minimised, the optimum overseeding window is immediately after the last silage cut of the season or after a hard graze in the spring or autumn
- Although the benefit of minimising competition from the existing sward also applies to ProNitro® treated seed, the increased competitiveness of ProNitro® reduces the dependence on timing and may offer the opportunity of a much wider sowing window

Fertiliser

- When clover is included wait until at least 30 days after sowing before applying any nitrogen fertiliser to minimise competition from the existing sward. If clover is not included this period can be reduced to 15 days

Livestock Re-introduction

- After cutting wait until aftermaths have fully recovered
- After grazing leave stock on for 10 days then remove and allow sward to recover



Oveseeding can dramatically improve sward performance

All HF **GrassMax™** mixtures
are available with

ProNitro®

Grass and Fodder Crops HIGH CLOVER AND ORGANIC MIXTURES

In recent years interest in clover has increased dramatically partly due to the organic sector but also due to an increasing awareness of the benefits that clover can bring.

Whether farming organically or conventionally, the key to unlocking the full benefits of clover lies in the mixture design and the production of a sward that will produce a high yield and allow clover to thrive at the same time.

For many years HF Seeds has pioneered the development of mixtures for the organic farmer and the experience and knowledge gained has produced a range of high yielding mixtures specially designed to maximise both the nutritional and nitrogen fixing abilities of modern clover varieties.

The key elements of mixture design to create a productive high clover sward are

- Selection of grass varieties to ensure the production of an open but high yielding sward that allows clover to thrive
- The correct proportion of clover in the mix to ensure that the right balance of grass and clover in the final sward is achieved
- The selection of both grass and clover varieties suited to both the intended duration and purpose of the sward

In terms of mixture design, whether organic or conventional, identical principles apply to unlocking the benefits of clover and the HF High Clover range has been developed to meet three distinct farm uses and to produce swards with a high clover content and capable of exceptional performance.

All HF High Clover mixtures are available with a 70% organically produced content to meet 2016 organic certification requirements.



HF HIGH CLOVER SHORT TERM

Also Available with a 70% Organic Content

A highly productive two to three year cutting mixture containing high yielding Hybrid Ryegrass, Advanced™ Grasses and Red Clover

SOLID
Tetraploid Hybrid Ryegrass
LOFA
Advanced™ Hybrid Ryegrass
PERSEUS
Advanced™ Italian Ryegrass
HF RED CLOVER BLEND
Red Clover

RECOMMENDED SOWING RATE
12 - 14 KG/ACRE (30 - 35 KG/HECTARE)

- Optimum cutting date — first week in June
- Contains only aggressive, fast growing grasses for both their yield potential and their ability to compete and survive in a sward with a high Red Clover content
- Contains a high proportion of Lofa Advanced™ Hybrid Ryegrass and Perseus Advanced™ Italian Ryegrass both of which are ideal companion grasses for Red Clover bringing huge benefits in terms of yield, forage quality and disease resistance
- High sugar content to complement the lower sugar of Red Clover and to ensure good fermentation in the clamp
- Capable of at least three silage cuts and aftermath grazing
- Rapid regrowth for second and subsequent cuts
- Designed to last for three full production years after the year of sowing



'We have been using HF Seeds for over 30 years because they perform very well for us and never let us down. We have once tried another mixture but it did not do well at all. We need big yields of quality silage and grazing to help us produce good Charolais suckled calves for the store market. This year we had a total of 18 heavy bales an acre off an HF Red Clover mixture and with 17.3 % protein have reduced our feed bills substantially'

Kevin Cruickshank, Coleburn Farm, Longmorn, Elgin, Morayshire



Grass and Fodder Crops HIGH CLOVER AND ORGANIC MIXTURES



HF HIGH CLOVER DUAL PURPOSE

Also Available with a 70% Organic Content

A medium term high sugar mixture designed for dual purpose use where fields are both cut and grazed.

SOLOMON
Intermediate Perennial Ryegrass
SEAGOE
Tetraploid Intermediate Perennial Ryegrass
TODDINGTON
Late Perennial Ryegrass
PASTOUR
Late Perennial Ryegrass
ROMARK
Late Perennial Ryegrass
TWYMAX
Tetraploid Late Perennial Ryegrass
ALFONSO
Tetraploid Late Perennial Ryegrass
DOLINA
Timothy
PROMESSE
Timothy
HF RED CLOVER BLEND
Red Clover
HF DUAL PURPOSE CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
13 - 15 KG/ACRE (32 - 35 KG/HECTARE)

- Optimum cutting date — first week in June
- Specially formulated for top quality high DNDF forage with varieties selected for their high yields under both cutting and grazing and their excellent forage quality
- High sugar yield per acre ensures maximum feeding value, excellent palatability and rapid silage fermentation
- Formulated with high yielding but open varieties to ensure the correct balance between grass and clover is achieved
- Small Red Clover inclusion for high clover yields and nitrogen fixation in the early stages of establishment
- High White Clover content of HF's unique Dual Purpose Clover Blend to ensure the optimum clover content in the final sward
- Clover blend based on the most productive clover varieties with high yields under both cutting and grazing management

HF HIGH CLOVER GRAZE

Also Available with a 70% Organic Content

A medium to long term grazing mixture using persistent grazing varieties of both grass and clover and specially formulated to ensure the maximum contribution from clover.

SOLOMON
Intermediate Perennial Ryegrass
TODDINGTON
Late Perennial Ryegrass
ROMARK
Late Perennial Ryegrass
PASTOUR
Late Perennial Ryegrass
CANCAN
Late Perennial Ryegrass
ALFONSO
Tetraploid Late Perennial Ryegrass
TWYMAX
Tetraploid Late Perennial Ryegrass
HF GRAZING CLOVER BLEND
White Clover

RECOMMENDED SOWING RATE
13 - 15 KG/ACRE (30 - 37 KG/HECTARE)

- Specially formulated for top quality high DNDF forage with varieties selected for their high yields under grazing and their excellent forage quality and digestibility
- Contains varieties specially selected for their grazing performance in terms of yield, ease of grazing management, forage quality and sward density but which also will allow clover to thrive
- High sugar yield per acre to ensure the maximum feeding value and excellent grazing palatability
- Formulated with later varieties to have grass at the right stage for grazing at turnout
- Contains very persistent varieties of both grass and clover capable of withstanding heavy grazing pressure
- High White Clover content of varieties specially selected for their yield and persistency under grazing management

Grass and Fodder Crops GREENING

Greening is now an established requirement on many farms throughout the UK, introduced to encourage the delivery of 'farming practices beneficial for the climate and the environment. Although the basic principles of Greening remain the same throughout the UK and the information on these pages refers to England, there are some differences in the schemes operating in Scotland, England and Wales and farmers are advised to check the CAP regulations in their respective areas.

Greening comprises three elements namely Permanent Grassland, Crop Diversification on Arable Land and Ecological Focus Areas as follows.

Permanent Grassland

Permanent Grassland is defined as land out of rotation for more than 5 years

Crop Diversification on Arable Land

This is often called the '3 crop rule' and applies to all farmers with over 10 hectares of arable land who do not qualify for an exemption. Temporary grass is included as an arable crop

Ecological Focus Area (EFA)

Where arable land is more than 15 hectares, at least 5% must be managed as an EFA. In England there are 5 different options to choose from which can be mixed and matched to make up the 5% but they must feature on or next to arable land. Each option has different weightings (according to the perceived environmental benefit) and different management obligations.

Ecological Focus Area Option	Basic Guide
Fallow Land	Fallow period 1st January to 30th June. Fallow land must have a minimum width of 2m and a minimum area of 0.01ha. Wild Bird and Nectar Rich Mixtures are encouraged. Temporary grass and buffer strips can be managed as fallow. Grass can be sown during the fallow period as long as there is no production during the fallow period. Fallow land can be mown as long as the cuttings are left on the ground. Grass can be utilised after the end of the fallow period on 30th June.
Buffer Strips	Buffer strips are areas of land designed to benefit water quality and biodiversity and should be adjacent to or run parallel with water courses or on a slope leading to a water course. Buffer strips should have a minimum width of 1m. Grass only mixtures and grass mixtures with wild flowers and/or nectar producing plants can be sown.
Catch Crops / Cover Crops	Designed to enhance biodiversity and prevent soil erosion, Catch Crops must be established by 31st August and retained until at least 31st October. Cover Crops must be established by 1st October and retained until 15th January. Eligible crops must consist of a sown mix of two different cover types (one cereal and one non-cereal) that establishes quickly, achieves good ground cover and has different root depths. Eligible crops are rye, oats, barley, phacelia, mustard, vetch, radish and Lucerne. Grass can also be used but it must be undersown in the previous crop and fully established by the start date.
Nitrogen Fixing Crops	A detailed list of eligible leguminous crops has been published including all types of clover; Birdsfoot Trefoil, Sainfoin, Lucerne and peas and beans. Legumes sown with grass cannot be used.
Hedges	Hedges need to be next to arable land with a minimum length of 20m but there are no restrictions on height or width. Newly planted hedges are eligible.

Grass and Fodder Crops GREENING

Depending on the option chosen there is a limited range of single species and many combinations of different species which can be sown into the Ecological Focus Area. Eligible mixtures essentially fall into one of three main categories namely grass mixtures, wild bird seed mixtures and nectar- rich mixtures which include nectar producing plants and wild flowers. The full range of HF mixtures is presented in the 2016 HF Countryside brochure which is available from HF distributors but a selection of the more commonly sown mixtures is shown below.

GRASS SEED MIXTURES

Although conventional grass seed mixtures can be used in several options, in many cases mixtures containing less productive 'natural' grasses are preferred

BGM 1 with Cocksfoot

20% Hard Fescue
20% Creeping Red Fescue
20% Cocksfoot
20% Timothy
20% Tall Fescue

100%

BGM 2 no Cocksfoot

20% Hard Fescue
20% Creeping Red Fescue
20% Chewings Fescue
20% Timothy
20% Tall Fescue

100%

BGM 3 with Cocksfoot & Clover

20% Hard Fescue
20% Creeping Red Fescue
15% Cocksfoot
20% Timothy
15% Tall Fescue
5% Birdsfoot Trefoil
5% Small Leaved White Clover

100%

The above mixtures are sown at 20 kg/ha. BGM 1 and 2 are available with a Red Clover inclusion and other grass mixtures containing wild flower and nectar producing plants are also available

WILD BIRD SEED MIXTURES

These mixtures are designed to provide seed-rich habitats for wild birds

WBS 1

1 Year Spring Sown

60% Spring Triticale
30% Spring Barley
5% White Millet
2% Red Millet
2% White Mustard
1% Fodder Radish

100%

WBS 2

1 – 2 Year Spring Sown

55% Spring Triticale
25% Spring Barley
7% Kale
4% Fodder Radish
4% White Millet
3% Quinoa
2% Red Millet

100%



Corn Bunting (courtesy of RSPB Scotland)

The above mixtures are sown at 40 kg/ha. Other spring and autumn sown mixtures are also available.

NECTAR RICH MIXTURES

Nectar rich mixtures are designed to provide flower-rich habitats to support pollinators

Pollen & Nectar with Grass

10% Meadow Fescue
10% Tall Oat Grass
10% Cocksfoot
10% Timothy
10% Tall Fescue
10% Sainfoin
8% Birdsfoot Trefoil
6% Alsike Clover
6% Winter Vetch
5% Creeping Red Fescue
5% Hard Fescue
5% Red Clover
3.75% Yellow Trefoil
1% Black Knapweed
0.25% Musk Mallow

100%

Sowing rate 20 kg/ha

Nectar Rich Bronze

50% Sainfoin
18% Winter Vetch
10.5% Alsike Clover
10% Birdsfoot Trefoil
8.5% Red Clover
3.0% Lucerne (inoculated)

100%

Sowing rate 10 – 15 kg/ha



The Great Yellow Bumblebee (courtesy of The Bumblebee Conservation Trust)

Other nectar-rich mixtures containing native wildflowers are available

The above mixtures only represent a small selection of the vast array of eligible mixtures which can be sown into Ecological Focus Areas. For more information and details of the full HF range please refer to the 2016 HF Countryside brochure (see page 31).

Grass and Fodder Crops

ROOT AND FODDER CROPS

SOWING RATES, RELATIVE YIELD AND ENERGY LEVELS OF FODDER CROPS

Crop	Sowing Rate per acre	Sowing Period	Utilisation Period	Fresh Yield tonnes/acre	Dry Matter content %	DM Yield tonnes/acre	DM Energy content MJ/kg	Energy Yield per acre '000MJ
Fodder Beet	50,000 seeds	March - April	Harvested and clamped October onwards	25 - 35	17	4.2 - 6.0	12.5	52 - 75
Swedes	Graded seed Approx 250 gms	May	October - March see varieties	28 - 35	11	3.0 - 3.8	12.9	35 - 49
Turnips	Graded seed Approx 250 gms	May - June	October - January	24 - 30	9	2.2 - 2.7	11.2	25 - 30
Kale	3 kg broadcast 2 kg drilled	May - June	October - February	20 - 30	14	2.8 - 4.2	11.0	31 - 46
Forage Rape	4 - 5 kg broadcast 3 - 4 kg drilled	June - August	Sept - December	12 - 15	12	1.5 - 1.8	10.5	16 - 19
Stubble Turnips	3 kg broadcast 2 kg drilled	May - August	12 weeks after sowing	15 - 18	9.5	1.5 - 1.8	11.6	17 - 21

FODDER BEET

Fodder Beet is grown as a main root crop, which requires similar husbandry to sugar beet. 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.

Variety	Kyros	Magnum	Jamon
Clean dry matter yield (100 = 15.2t/ha)	99	107	99
As field fresh yield (100 = 100.4t/ha)	100	96	105
Dry matter content (%)	16.8	19.3	16.2
Establishment (9 = good 1 = poor)	7	7.4	7.6
Bolting (%)	0.2	0.1	0.2
Top size (9=best 1=worst)	7.2	6.5	6.8
% of root in ground	67	78	67
Cleanliness (9 = best 1 = worst)	6.7	6.4	5.8
Rust (9 = best 1 = worst)	4	4	5
Ramularia (9 = best 1 = worst)	4	7	6
Root Colour	Yellow	White	Orange



Fodder Beet Yield and Feed Quality

Average dry matter yield	13 - 15 tonnes/ha
Average fresh yields	80 - 100 tonnes/ha
Dry matter	12 - 19%
Crude protein	12 - 13%
Digestibility value	78D
Metabolisable energy	12.5 - 13.5MJ/kg DM

MAGNUM

Magnum has a consistent root size and reliable dry matter yields from white roots. It is very palatable with a high proportion of its roots in the ground and due to its high dry matter content it is more frost resistant than other varieties.

JAMON

A very consistent variety producing a clean and highly palatable orange root with average dry matter content. Jamon has good resistance to both leaf disease and bolting and benefits from a large top size with 33% of its root in the ground allowing easy lifting.

CERISE NEW FOR 2016

Cerise is a reliable and highly productive yellow rooted variety with 35% of its root above the ground with a low dirt tare and a high DM content of 17.5% which makes it excellent for both grazing or lifting. Cerise also has the added benefit of being Rhizomania tolerant.

ENERMAX

A Rhizomania tolerant variety suited for both fodder and bio-energy production, Enermax has a clean, white, smooth-skinned root and is shallow rooting resulting in a relatively clean end product. It is high yielding with in-house trials showing root yields of 21 t DM/ha with a further 5 t/ha from the tops.

Grass and Fodder Crops

ROOT AND FODDER CROPS

SWEDES

Swedes grow on a wide range of soil types and can be grazed in situ or lifted for stockfeed or as a cash crop. Whatever the intended use, the dry matter content is one of the most important characters to consider. Low dry matter types are softer and are more suitable for early use whereas the high dry matter types are more winter hardy and therefore better suited to later utilisation. For cash cropping fresh yield, shape and colour are important considerations with purple skinned, globe shaped roots generally considered the most marketable type.

AIRLIE

For early to intermediate use Airlie produces high fresh yields of uniform globe shaped roots with purple skin and creamy white flesh. Good general disease resistance.

RUTA OTOFTE

A very popular purple skinned variety with cream coloured flesh suitable for both fodder and culinary use. A medium dry matter variety with good winter hardiness and Mildew resistance.

MARIAN

A good culinary use variety with an attractive purple globe and cream coloured flesh. With its medium dry matter content Marian is suitable for intermediate use but has slightly lower yield potential than other varieties.

LOMOND

A new and extremely high yielding variety bred by SCRI, Lomond has purple skin and yellow flesh and has good Club Root and Powdery Mildew resistance. Lomond is slightly less uniform than Gowrie and consequently is the better stock feed variety.



GOWRIE

A new high yielding variety bred by SCRI, Gowrie produces very uniform roots with purple skin and yellow flesh making it ideal for the culinary market. Good Club Root and Powdery Mildew resistance.

KENMORE

A bronze skinned, white fleshed variety with very high fresh yields best suited as stock feed. Kenmore is early maturing and with its medium dry matter content and very good winter hardiness, it allows for a very wide window of utilisation.

INVITATION

A high yielding purple/bronze skinned variety with a high dry matter content and very good winter hardiness making it suitable for late use. Invitation has excellent resistance to both Club Root and Mildew and it also produces large leaves for extra grazing potential.



KALE

Kale is the highest yielding of all the leafy forage brassicas and has excellent feeding value and a high crude protein content. It can provide a long and flexible period of utilisation and can be grazed in situ, cut and carted to housed livestock or ensiled as big bale kaleage. There are however big differences in terms of winter hardiness and varieties should be chosen to suit the utilisation period. For maximum yields kale requires good fertility and a pH of at least 6.0.

SOVEREIGN

Sovereign is a high yielding, medium tall forage kale with good club root tolerance. In SAC trials Sovereign demonstrated good dry matter yields and an excellent leaf to stem ratio thereby improving palatability, stock utilisation and animal performance. With good winter hardiness and keeping ability it has potential for a long usage period.

GOLDENEYE

Goldeneye is a giant type kale specially bred for the game cover market and selected for the optimum combination of height and leaf production. It has a leafy top, strong stem, good winter hardiness and good disease resistance making it an ideal choice for game cover.

GRÜNER ANGELITER

Grüner Angeliter is a marrowstem type producing very high fresh yields. With its high yield, good winter hardiness and excellent feeding quality, Grüner Angeliter is well suited for stock feed use, but with its tall growth and high leaf canopy it is also ideal for game cover.

Grass and Fodder Crops

ROOT AND FODDER CROPS

FORAGE RAPE

Rape is fast growing and will tolerate poorer fertility conditions than Kale. When sown as a catch crop between June and August it will provide valuable autumn and winter grazing. It has a wide sowing window and utilisation period and produces a digestible and high energy crop, ideal for finishing lambs.

EMERALD

A rapidly establishing medium to tall palatable variety with above average dry matter yields and good general disease resistance.

SPITFIRE

NEW FOR 2016

Spitfire is a modern, multi-purpose rape created by crossing rape with kale. It is a medium-tall and very palatable variety with a high dry matter yield, excellent aphid tolerance and rapid growth from establishment to maturity. It also has very good regrowth potential but needs to be managed carefully to avoid damaging the stems. Spitfire is suitable for sowing in the spring for excellent summer and autumn feed or in mid-summer for quality winter fodder.

ZOOM BRASSICA MIXTURE

A blend of Winfred Hybrid Brassica and Forage Rape, Zoom is a very vigorous and quick growing mixture which is ideal for replacing failed crops or for patching earlier sown crops which are struggling. High seedling vigour ensures a reliable establishment of a high leaf to stem ratio crop with good disease and bolting resistance.



STUBBLE TURNIPS

Stubble Turnips provide palatable and digestible fodder for grazing 10 – 12 weeks after sowing. They can be sown at any time with the required utilisation period determining the sowing date. Stubble Turnips are less winter hardy than other brassicas and should be used before Christmas. Varieties differ in their leaf to root ratio with leafy types providing better anchorage and winter hardiness than bulb types which produce larger but relatively low dry matter roots.

TYFON

A fast growing leafy type with some regrowth potential but it can be susceptible to bolting when sown too early. Tyfon has small bulbs and produces approximately 80% of its yield from leaf. Good root anchorage and reasonable frost tolerance.

VOLLEND A

A highly digestible, late tetraploid variety noted for its speed of growth, overall yield and resistance to bolting. Vollenda is a bulbing type with a leaf to bulb ratio in the region 30 : 70.

BARKANT

Producing slightly smaller roots than Vollenda, Barkant is a bulbing variety producing very high yields of digestible dry matter. Reasonably winter hardy for a stubble turnip.



Please note that with all Brassica crops, 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 freely available.



In addition to quality grass seed mixtures and root and fodder crop seeds for autumn and winter grazing, HF Seeds offers a comprehensive range of both straight varieties and seed mixtures covering all aspects of game cover and food crops for a wide variety of shoots, locations and climate. In addition mixtures are supplied for specialist markets like Biogas and green manuring and for greening and other environmental uses.

The area of alternative crops and new farm enterprises like Biogas, in conjunction with increasing interest and emphasis on wildlife and the environment, has created a vast array of seed mixtures and single crops for different uses on farm containing a wide and complex spectrum of plant species. The 2016 44 page HF Countryside brochure is a comprehensive guide to crop selection for different uses and provides clear advice on both species and mixture selection to meet both stewardship and other specific objectives. The brochure also contains detailed husbandry guidelines to ensure as far as possible that the investment in quality seed products is rewarded.



Grass and Fodder Crops THE BEST GRASS SEED MIXTURES

HF Grass Mixtures have been developed following many years of trials and on-farm experience to ensure top quality highly productive swards capable of exceptional performance and offer the best complete package and real value for money to farmers throughout the length and breadth of the UK and Ireland.

THE BEST ADVICE

The HF package goes much further than just product quality and extends as far as the farm gate and the end user. All HF products are backed by a country-wide network of in-house seed specialists and experienced distributors who are capable of offering technical help and advice on all aspects of mixture selection and establishment. Their knowledge can help balance the issues of yield, seasonal growth, forage quality, sward density, disease resistance and winter hardiness to ensure that you select the mixture best suited to your individual farm, enterprise and location.

THE BEST PRODUCTS

- Mixtures are formulated using only the best varieties selected from a wide range of breeders for their overall performance
- Unique mixture design with all grasses and clovers selected on the basis of their performance in UK trials
- The highest standards of purity and germination ensure the fast establishment of dense, weed free swards
- On-going trials and research ensure that HF Mixtures lead the field with unique advances in grass mixture technology

THE BEST VALUE

The combination of the best advice and the best products from experienced distributors who understand the pressures of livestock farming at a local level ensures that HF Mixtures always deliver real value from top performance swards.



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