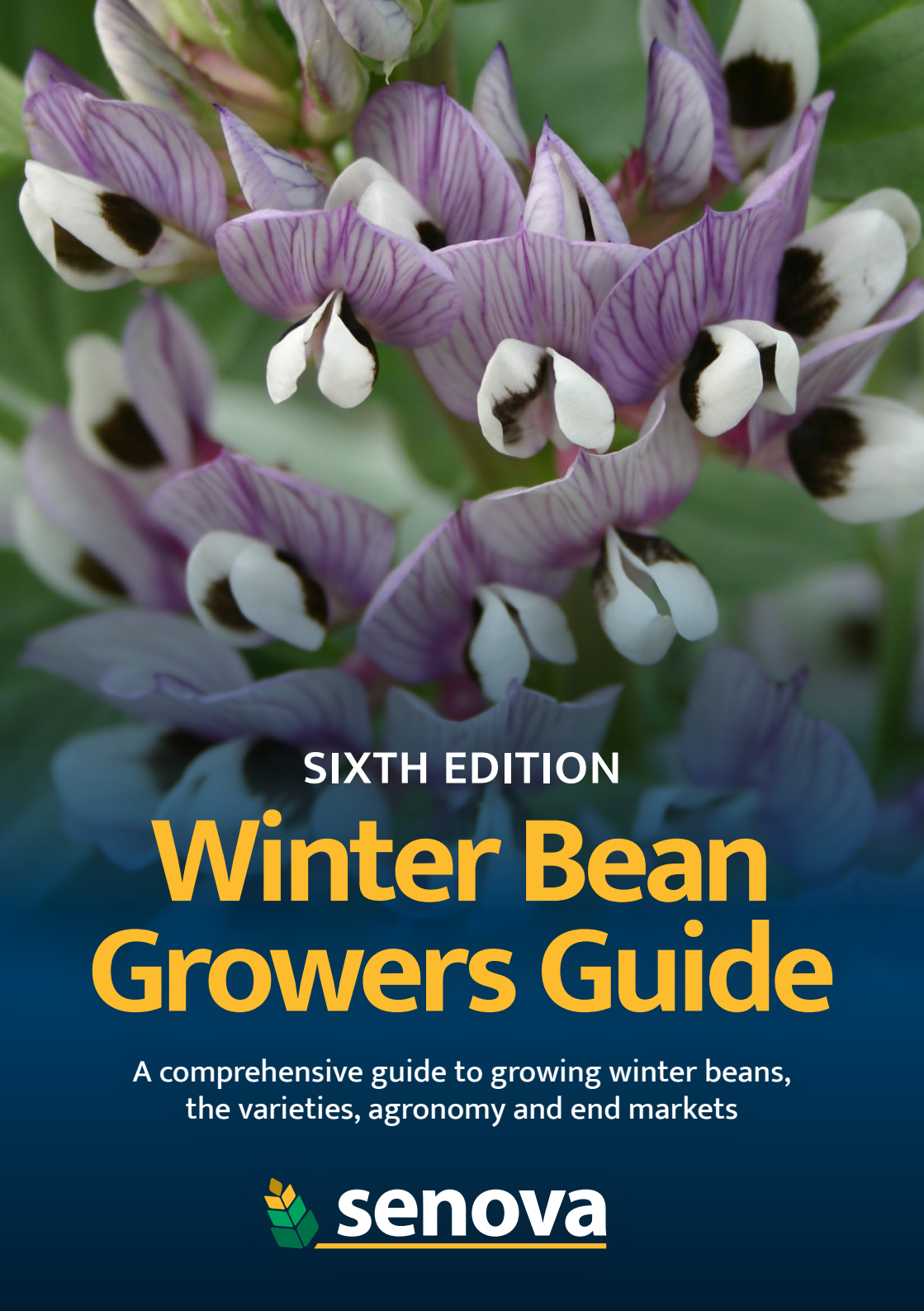

SIXTH EDITION

Winter Bean Growers Guide

A comprehensive guide to growing winter beans, the varieties, agronomy and end markets

senova

For more information on winter beans visit:
www.senova.uk.com
www.winter-beans.co.uk

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Senova: at the heart of the UK Pulse market

Senova is a private, independent seed marketing and crop development company with a diverse portfolio, and has been actively involved in the pulse market for over many years. Senova and Wherry & Sons formed UK Pulses, a joint venture, to specialise in the development, production and commercialisation of pulse crops. Senova are excited to bring new and existing winter bean varieties to the market.

Senova remains dedicated to the needs of the market and strives to give the breeding activities realistic objectives in line with those market demands.

The winter bean breeding programme develops new varieties for UK production and is now centred in East Anglia, mid Wales and the areas which are key to the successful growth of the crop. The focus is on varieties for the British farmer, with every effort made to ensure that the purity and vigour of new lines are guaranteed. In addition to bringing improved varieties to the market, Senova has a long term commitment to furthering crop research and breeding.

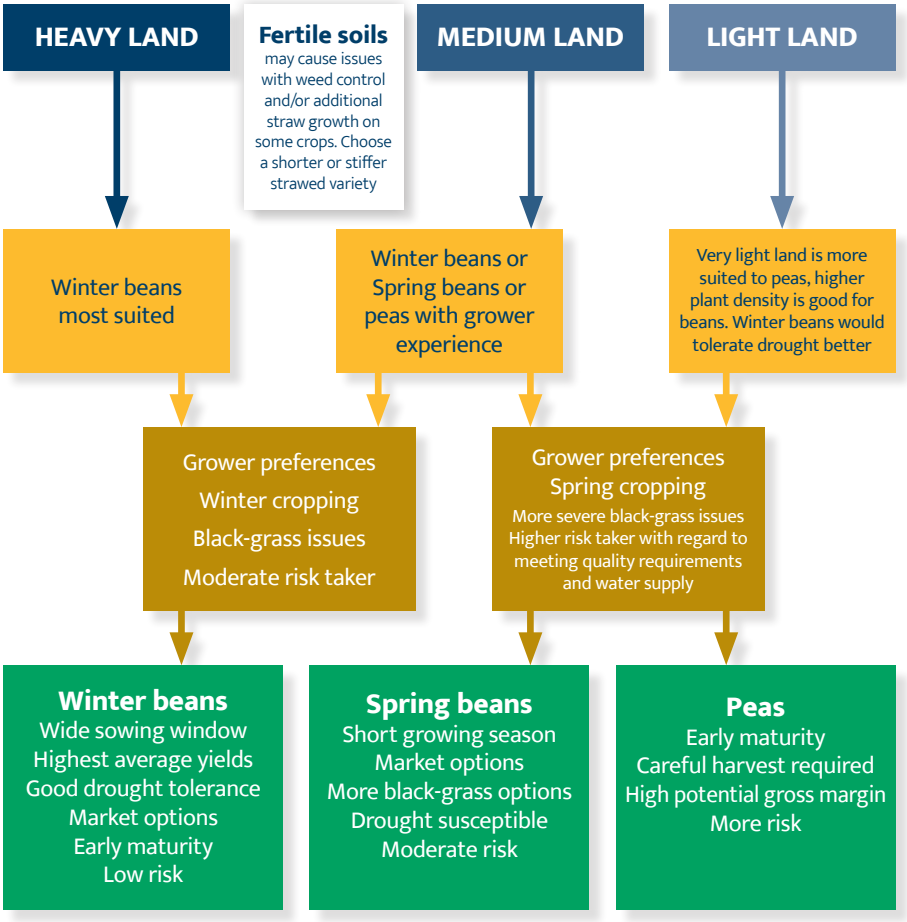
The company is also proud to be leading cutting-edge research in collaboration with UK research institutes, food manufacturers, retailers and machinery companies to combine their expertise and address the problems faced by growers.

Choosing the right crop

Winter beans, spring beans or peas?

Increased market demand, improved gross margins and the search for desirable alternative protein sources have highlighted the pulse crop to many new growers.

Choices come down to suitability for the individual situation, land type, preference for winter or spring cropping, severity of black-grass issue or market and quality expectations. This is simplified below:



Many growers prefer autumn establishment as this helps workload and certainly the benefits of a deep rooting winter crop will have advantages over spring sowings. Issues can occur with spring establishment where there is a lack of moisture. Denser plant populations will help in some situations.

The case for winter beans

Winter Beans are the leading Autumn break crop option – for reliability

The decision process in choosing a break crop is now increasingly more complex. Growers now need to consider crop reliability when making this decision and balance against expected returns for other crops such as OSR which may not survive after the winter period due to establishment and pest issues. The winter bean crop can be established with a range of methods to suit the situation and has robust early growth which can cope with a range of temperature and moisture related conditions.

Winter beans are a valued break in a rotation as they help to enhance soil structure and health

The deep fibrous rooting system of beans helps to break down the more difficult soil structures where other crops cannot.

Winter Beans are a low cost crop to establish

Variable costs are considerably less than those of oilseed rape, a particularly important factor when commodity prices are under pressure (see table).

	Winter beans (£)	Oilseed rape (£)	Wheat (£)
Seed	105	55	73
Fertiliser	75	266	279
Crop protection	150	255	265
Sundries	18	20	25
TOTAL	**348**	**596**	**643**

Source: The Agricultural Budgeting & Costing Book, Nov 2024

A break from cereal crops will help offer both improved cultural control opportunities and the option to use alternative chemistry

Winter beans can be grown and harvested with existing equipment, without compromising workloads. The later, more flexible drilling window for winter beans allows at least one flush of black-grass to be sprayed off before the crop is drilled. As the cost of black-grass control in cereal crops now exceeds £100/ha on many farms, the ability of winter beans to keep weeds at low levels is becoming increasingly important. There is a good range of pre- and post-emergence herbicides available for use on beans for control of broad-leaved weeds and grass weeds.

The demand for home grown protein consumption, export markets and added value markets remain key

In recent years, the demand for export quality beans has exceeded supply. Additionally demand from feed protein markets has seen prices provide good returns on farm and offer excellent potential for future demand. Additional opportunities into the Aquaculture market and the plant protein sector will help maintain this demand in the future.

Winter beans do not require nitrogen fertiliser and will increase yields of subsequent crops

Winter beans produce root nodules, thereby fixing atmospheric nitrogen and avoiding the need for nitrogen fertilisation. They do not result in significant levels of nitrous oxide emissions as other crops do. This makes beans ideally suited for use in the rotation to reduce the greenhouse gas emissions associated with agricultural activities. Furthermore, a bean crop will result in 20-60kg/ha residual nitrogen that can be used by the subsequent crop. Studies suggest that wheat following winter beans can yield 0.84t/ha more than wheat following oilseed rape. Combined with the reduced input costs of fertiliser this increase can contribute up to £151.2/ha gross margin per hectare (given a wheat price of £180/t). In addition, the deep rooting nature of beans helps to develop a more open soil structure.

SENOVA VARIETIES: PROVEN

Which winter bean variety?

Variety selection should be determined by the choice of end market, variety acceptability and the conditions in which the beans are to be produced.

The leading Senova varieties on the PGRO Descriptive List are large seeded pale hilum types with potential for the export market – Vespa, Vincent, Ninja, Norton and Miro.

Vespa

Vespa is the joint highest yielding winter bean on the PGRO DL, with medium height, very stiff straw. It is early to ripen. Vespa has improved standing ability and a larger seed size than Tundra. With large seed and a pale hilum, Vespa is suitable for both export and animal feed markets.
TGW 711

Vincent

Vincent is a very high yielding variety with exceptionally large seed and a high protein content. It is similar in height to Vespa, with very good standing ability and similar maturity. It has the best downy mildew resistance on the DL with a rating of 7. Vincent has a pale hilum and extraordinarily large seed, which ensures its popularity for feed and export markets.
TGW 818

IN THE FIELD AND MARKET

Ninja

Ninja is a shorter variety with excellent standing ability and the earliest maturity and highest protein content on the PGRO DL 2025. Its yields are above Tundra and other early varieties and we believe its yield potential is higher than the 5 year dataset in trials shows. It is a strong choice for higher fertility, wetter areas of the UK. Ninja has the highest protein content on the DL and large seed and should prove popular for all markets.

TGW 703

Norton

Norton is an early maturing variety with excellent disease resistance. With shorter straw, superb standing ability, good resistance to all diseases and early maturity Norton is ideally suited to higher fertility, wetter areas of the UK.

TGW 709

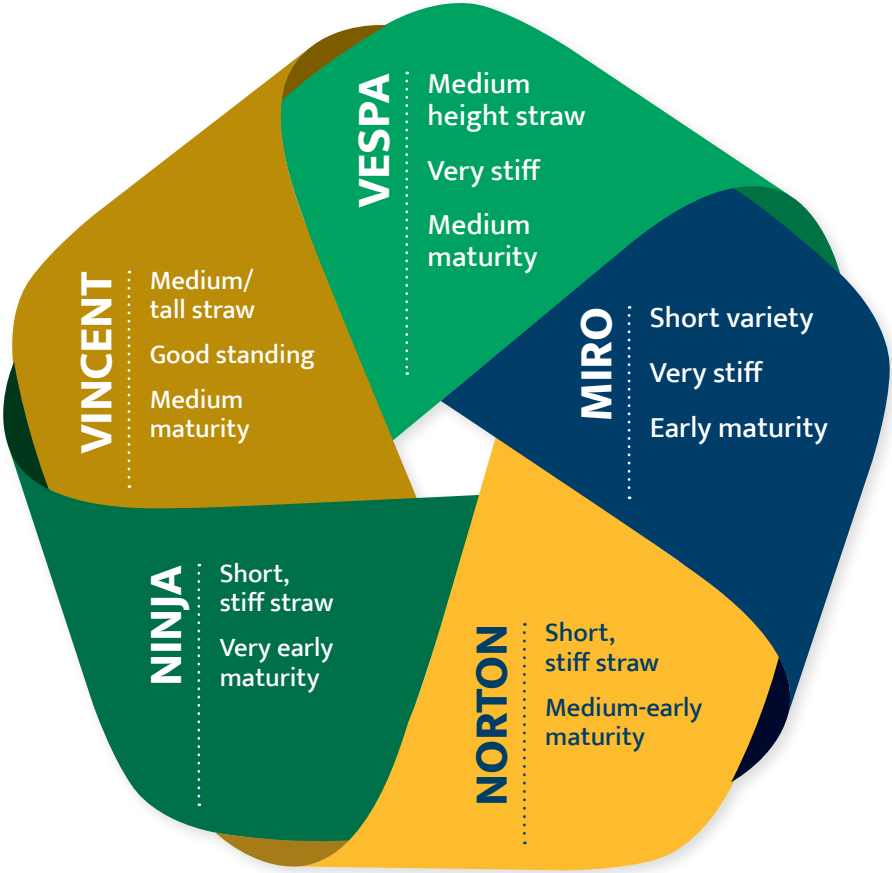
Miro

Miro is new to the PGRO DL 2025. It is a shorter variety and is early to mature.

Miro has excellent standing power and good resistance to rust an chocolate spot. It is very large seeded with a good protein content.

TGW775

Variety choice by agronomic character



Research, Intellectual property and how the breeder is rewarded

Senova has a committed programme of R&D investment into the UK Pulse crop for the ultimate benefit of UK growers.

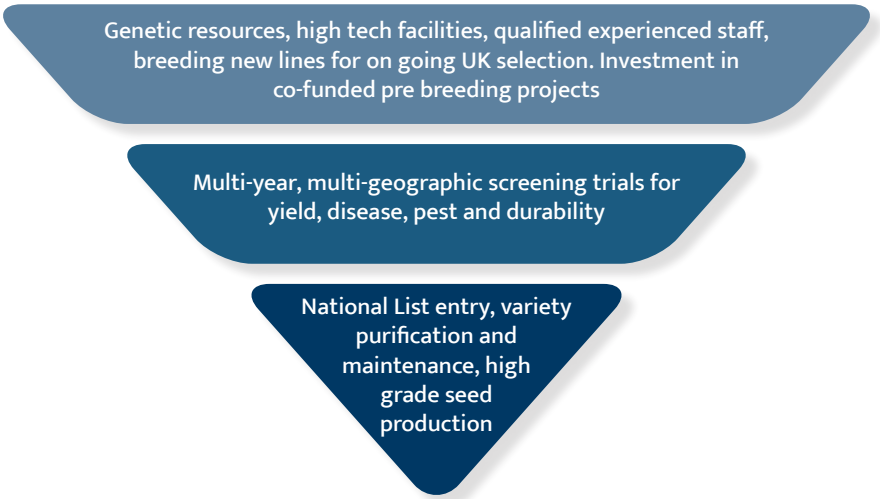
For every variety which is promoted onto the Recommended List there are many hundreds which fall by the wayside. The process of crossing, selection and field trials takes many years before successful varieties come to the market, and at a considerable cost.

New variety introductions into the market offer a diversity of genotypes which can compete with new disease and climate pressures as they are encountered. It is important to offer new varieties that cope with these pressures while still offering the very best agronomics, consistent yield and suitability to defined end markets.

Resources required for new varieties and variety maintenance

The breeder's reward is through protection of varieties through Intellectual Property Rights and Plant Breeders Rights (PBR).

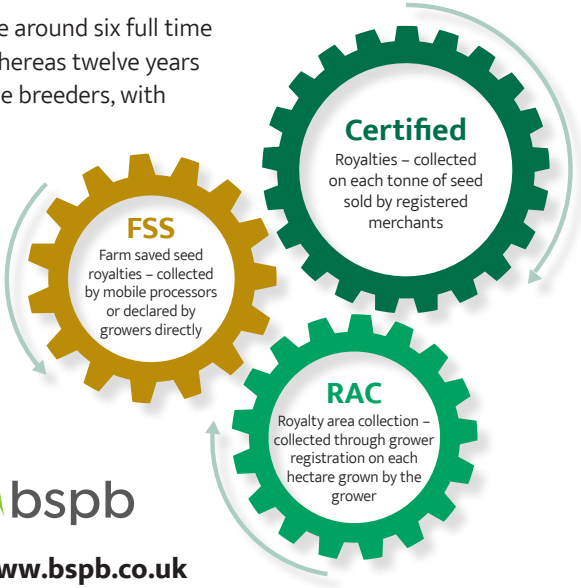
Growers have the right to choose to use either certified seed or farm saved seed. Breeders do however need to be rewarded for this work, to sustain investment in the delivery of varieties with improved value and performance.



UK Breeders intellectual property reward mechanisms

In the present climate there are around six full time bean breeders left in the EU, whereas twelve years ago there were over thirty pulse breeders, with very little selection actually happening within the UK.

Senova is committed to supporting UK agriculture through a considerable investment in breeding and selection in our maritime climate.



BIPO Breeders' Intellectual Property Office

www.bipo.org.uk

bspb

www.bspb.co.uk

The market – opportunities to lock into the supply chain

Markets

Beans are currently produced for two main markets: export human consumption and animal feed.

Total UK bean production is around 500,000t per year. Typically, up to 25% of this is exported for human consumption and the remainder is sold locally for compound animal feed. The quality of the produce determines which market the beans are best suited to. The specification for human consumption and feed beans is similar, with a maximum of 2% admixture and 14-16% moisture, depending on the buyer. Bruchid beetle damage or infestation will also affect values.

Export food markets

The higher value market for winter beans is for human consumption. North Africa, where beans are a staple component of the diet, is a strong importer of beans. Demand is satisfied from global sources and is fairly stable around 600,000t per year, of which the UK supplies a major part with the volume fluctuating each season depending on price and quality. Other suppliers include the Baltics and Australia.

Wizard beans destined for Egypt and being loaded onto a boat

For the whole bean market, the visual appearance of beans is key. Beans with a pale hilum are favoured and are ideally light beige in colour and of even size. Furthermore, beans must have minimal admixture, insect damage and cracking. Winter bean varieties Vincent and Vespa have proven suitability for this market and newer varieties coming along like Ninja and Miro appear to be accepted too.. Beans of superior visual appearance command a price premium in this market.

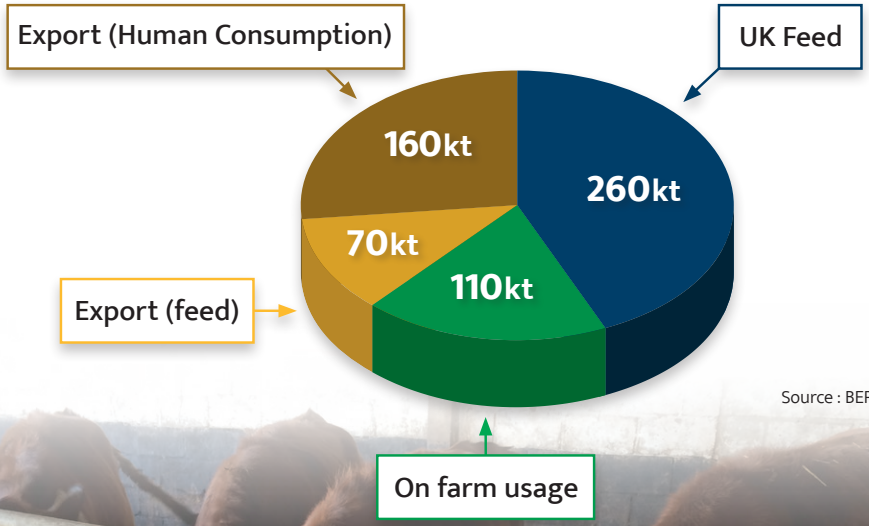
For the split bean market, the key qualities are seed size and skin thickness. During processing for split beans the skin is removed, a process called de-hulling. The ratio of flesh to skin and the ease by which the skin is removed determines the outturn rate during

processing, so larger seeded types are preferred. Wizard was a preferred variety into this market as it was considered superior to the smaller seeded types, Large seeded new varieties Vincent, Miro and Vespa should continue this trend – the largest seeds will continue to interest processors in the area of the market.

Animal feed

Annual demand for feed beans in the UK varies depending on the crop size but is normally 250,000 to 350,000t. In recent years interest in GM-free protein has started to stimulate this market and offers great potential for growth. Beans are typically compounded in ruminant feed as a protein source. This is seen as a growth area. The use of beans in feed for non-ruminants (in place of imported soya) is increasing due to the suitability of modern varieties, where they are used in a mixture with oilseed rape or cereals. The crop competes with soya and rape meal for inclusion, usually on a price basis, giving beans an advantage over soya where this is a consideration. On-farm feeding is believed to account for around 110,000t.

The estimated usage of beans



Source : BEPA/PGRO

Feed protein

The use of beans for protein in compound feeds for ruminants and non-ruminants is driven by the price/protein ratio relative to soya meal and wheat. Protein content can vary significantly between bean varieties, however the feed compounding industry uses a typical protein estimate of 28% for beans (compared with 45% for soya bean meal and 10% for wheat).

UK bean varieties can be guaranteed free of GM, whereas imported soya cannot. This gives UK beans an advantage when non-GM usage is a consideration.

Pig production could create increased feed demand in years to come

Aquaculture

Fish farming, particularly salmon and trout, has been a growing market in recent years. Beans are used in fish rations to bind the oils and meal required for optimal growth. The process usually involves de-hulling and extrusion.

In addition to supplying the thriving salmon farming industry based in Scotland, a considerable tonnage of UK beans is exported to Scandinavia. Major consumers in Norway and Denmark are responsible for most of this demand.

Fish farm production is a key growth area for the use of UK faba beans

Agronomy

Bean Production

Rotation

Like all large seeded legumes, winter beans should not be grown more than once every five years on the same land. If they are grown closer than this, there must not be more than two bean crops in a seven year period, which should then be followed by a minimum four year break. This avoids potential issues with soil borne nematodes, which can build up populations when host crops are grown closely together.

Soil Type

Winter beans are traditionally grown on moisture retentive, heavier soils which are less suitable for spring sowing. Winter beans are generally more resilient to soil conditions than other crop legumes, and grow well on a range of soil types, from loamy sands to deep silty clay loams. Beans benefit from good drainage so action should be taken to minimise compaction and water logging in bean crops. Beans do not require a fine seedbed and can tolerate cloddy conditions, although these may impact on weed control.

Blackgrass Control

Growers are increasingly advised to sow many crop types later to reduce blackgrass populations. The relatively later sowing window for winter beans enables good cultural control of blackgrass. With the optimum sowing time for winter beans being mid October to early November, this gives ample opportunity for one or two cultural control options.

Match your market choice to your soil type

HEAVY LAND	LIGHT LAND
Winter beans offer good establishment opportunities spreading the workload in the late autumn	Some spring sown crops on light land are prone to suffer from drought
If soil conditions become difficult, alternative establishment methods can be used such as ploughing the seed in	Winter beans offer a good variety choice with a wide variety of straw types available
Where land can be prone to drying out, winter beans offer good deep root systems which will tolerate drought better than spring crops	Autumn establishment at good sowing depths of taller strawed varieties offers excellent growing opportunities
Heavy or organic matter land can sometimes produce taller crops that are more difficult to manage. Choose a stiff and/or shorter strawed variety	Very light land may be more suitable to other crops such as peas which can be sown at high plant populations to preserve moisture
HEAVY LAND OR LAND WITH HIGH ORGANIC MATTER **All Senova varieties suitable but Ninja, Norton and Miro have shorter, stiff straw**	**LIGHTER LAND** **All Senova varieties suitable**

VESPA Winter Bean · Vincent Winter Bean · Miro Winter Bean · Ninja Winter Bean · Norton Winter Bean

Seed Health

Seed should always be tested for germination, pests and diseases.

Growers are advised to request the germination level on certified seed and have home-saved seed tested by a reputable laboratory, so that the results can be used – together with seed size or TGW – for calculating sowing rate.

Modern UK varieties have good *Ascochyta* resistance, but seed with over 1% infection should not be used. In addition, seed shown to have any infection of stem nematode should not be drilled.

Imported varieties must have their health status checked, as neither *Ascochyta* nor stem nematode are likely to be tested for in France or any other bean-producing country.

Plant Population/Seed Rate

Planting density has a large effect on yield. Seed rates should be calculated using the following equation:

$$\frac{\text{TGW x target population}}{\text{\% germination}} \times \frac{100}{100 - \text{expected field loss}}$$

Senova suggests applying specific targets by variety, this will take into consideration branching capacity. Where growers wish to make use of this information on branching capacity and optimum seed rate recommendation, they should refer to the tables below.

For 24 plants/m² – in kg/ha
For mid/late October sowings

	GERMINATION %			
24 plants/m²	**80**	**85**	**90**	**95**
600	200	188	178	168
620	207	195	184	174
640	213	201	190	180
660	220	207	196	185
680	227	213	201	191
700	233	220	207	196
720	240	226	213	202
740	247	232	219	208
760	253	238	225	213
780	260	245	231	219
800	267	251	237	225
820	273	257	243	230
840	280	264	249	236

TGW

Senova recommends 23-26 plants/m² for Vespa, Vincent and Ninja

Senova – Winter Bean seed rate calculator (Assuming 10% field loss)

For 28 plants/m² – in kg/ha

	GERMINATION %			
28 plants/m²	80	85	90	95
600	233	220	207	196
T 620	241	227	241	203
640	249	234	264	210
660	257	242	257	216
680	264	249	264	223
G 700	272	256	272	229
720	280	264	280	236
740	288	271	288	242
760	296	278	296	249
W 780	303	285	303	255
800	311	293	311	262
820	319	300	319	269
840	327	307	327	275

Senova recommends 28 plants/m² for all varieties sown in November/December

10% field loss usually applies to medium bodied soils or where conditions are reasonable and soil temperatures are average.

For 32 plants/m² – in kg/ha

	GERMINATION %			
32 plants/m²	80	85	90	95
600	267	251	237	225
T 620	276	259	245	232
640	284	268	253	240
660	293	276	261	247
680	302	284	269	255
G 700	311	293	277	262
720	320	301	284	269
740	329	310	292	277
760	338	318	300	284
W 780	347	326	308	292
800	356	335	316	299
820	364	343	324	307
840	373	351	332	314

Senova recommended 32 plants/m² for all varieties sown in January

Senova varieties show a positive yield response to increased plant density, with the short, stiffer varieties being the most suited to this approach.

Latest Senova trials suggest that the ideal plant population is between 22 and 30 plants established, which represents recommendations specific to individual Senova varieties.

Cultivation Method

Min-till and direct drilling systems are most suitable for beans and the majority of UK farmers establish bean crops this way. Preference varies from farm to farm, but optimum establishment is achieved by deep drilling, with seed being covered by a minimum of 3cm of soil, but can be sown as deep as 15-20cm when ploughed in.

The late autumn drilling date of winter beans means that soil conditions are often less than ideal. Where soil moisture is too high for drilling and/or the soil structure is poor, winter beans can be ploughed in instead of drilling, allowing any soil structure damage to be rectified in the process. Beans are sensitive to surface soil compaction and deep loosening of the soil profile has been shown to increase yields. However, seed distribution and subsequent seedling emergence can be uneven when ploughed in, thus the density of crops may not attain the plant density for optimum yields.

Drilling Date

The aim is to get well-established plants at the 1-2 node stage, or two pairs of leaves, before the winter sets in. While this is normally achieved by sowing mid-October to early November, there is flexibility with sowing date. Modern winter bean varieties can still be sown throughout December and January and into February.

Weed Control

Pre-emergence residual herbicides, which require soil moisture for activity, should form the backbone of weed control programmes in winter beans, as the post-emergence options are limited to just one product.

The pre-emergence choices include:

- **Pendimethalin** – straight products are no longer eligible on an EAMU for beans, so only approved for mixtures
- **Aclonifen** (Emerger) – broad-leaved weed control (fat hen, mayweeds, field pansy and redshank) as well as some control of black grass
- **Propyzamide** – annual grasses, broad-leaved weeds (including some activity on germinating cleavers)
- **Clomazone** – cleavers, chickweed, shepherd's purse, fools parsley and red dead-nettle
- **Pendimethalin and Imazamox** (Nirvana) – wide spectrum of broad-leaved weeds plus early emerging volunteer oilseed rape

Post-Emergence

There is only one approved post-emergence broad-leaved treatment for beans, which can be useful as a follow up treatment:

- **Bentazone** – most effective on small weeds. Warmer conditions improve efficacy. Can control troublesome species such as cleavers and volunteer oilseed rape, if control with pre-emergence herbicides has been disappointing.

Only Basagran SG (BASF), Benta 480 (NUFARM) and Clayton Baritone, will remain past 2020.

AT ALL TIMES FOLLOW THE MANUFACTURER'S RECOMMENDATIONS

Grass Weeds

There are several selective post-emergence grass weed herbicides which can be used in winter beans. No products control annual meadow grass, others are only effective on the weed if application timing is accurate.

Graminicide choice includes:

- **Fluazifop-p-butyl** – wild oats, volunteer cereals, barren brome
- **Quizalofop-p-ethyl** – wild oats and other grasses
- **Cycloxydim** – wild oats, barren brome and other grasses
- **Propaquizafop** – wild oats, barren brome
- **Quizalofop-P-tefuryl** – a selective, systematic, foliar-applied graminicide for use on specified broad-leaved crops for post-emergence control of a range of annual and perennial grass weeds, including volunteer cereals

Where resistant blackgrass is a concern, a different approach is required. This can be based on carbetamide and propyzamide, which have no known resistance issues.

AT ALL TIMES FOLLOW THE MANUFACTURER'S RECOMMENDATIONS

Nutrient Requirements

The requirements of beans are small and no N is required. Where P and K fertiliser is required, it is essential that it is put deep enough into the seedbed to allow full utilisation by the crop. Broadcast fertiliser should be ploughed shallow or applied over the furrows. It can then be worked in by subsequent cultivations, but the production of too fine a tilth and compaction must be avoided.

Based on a bean yield of 3.5t/ha the following application rates are recommended, if yields are expected to be greater or smaller rates should be adjusted accordingly. Where soil indices are above 2, there is little or no response to applications.

Soil Index	N	P	K
0	0	100	100
1	0	70	70
2	0	40	40 (2-) 20 (2+)
>2	0	0	0

Micronutrients

Beans have a requirement for manganese and boron, while magnesium deficiency occurs very occasionally. Most growers use a prophylactic programme containing a mixture of the micronutrients – this additional input is relatively low cost and can be applied when going through the crop with fungicides.

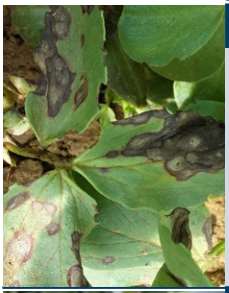
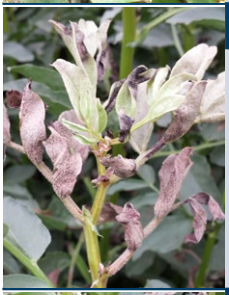
Manganese – beans are far less sensitive to manganese deficiency than peas, but it can be responsible for marsh spot disorder, which reduces bean quality. Most likely to occur on highly organic or alkaline soils, or when plants are under stress, it can be corrected by a foliar application as soon as the foliar symptoms of chlorosis are observed.

Boron – boron deficiency is becoming more common in both winter and spring beans. Symptoms usually include a cupping of the upper leaves and a stunting of the plants, but in severe cases the growing point can be killed. Corrective foliar treatments only work where the problem has been diagnosed in time.

Magnesium – beans rarely develop magnesium deficiency, but it can occur on acid soils. Foliar sprays are worthwhile where the problem is suspected.

Disease Control

Weather has a big influence on foliar disease in winter beans. Most diseases can be controlled by well-timed fungicide programmes, although soil and seed health also have a role to play.

	Damage	Favourable conditions	Treatment/ action
	**Ascochyta Fabae**		
	Seedling and plant loss	Comes from seed infection caused by prolonged wet weather in May and late July	Seed treatment advised for 1% infection. Spray at mid to late flowering where foliar symptoms are seen
	**Bean Downy Mildew**		
	Up to 30% yield loss	Temperature of 10°C or less and 24 hour leaf wetness	Treat when disease is seen at top of 20% of plants
	**Chocolate Spot**		
	Up to 25% yield loss Premature defoliation	Overcast, damp weather in May and June	Treat at early flower and repeat after 3-4 weeks
	**Bean Rust**		
	Up to 40% yield loss through premature defoliation	Hot days and cool nights after flowering	Treat at first signs of disease up until pod fill

Active ingredients for disease control approved for use as foliar sprays in beans include:

- **Metconazole**
- **Tebuconazole**
- **Azoxystrobin**
- **Boscalid + pyraclostrobin**
- **Cyprodinil + fludioxonil** (Botrefin / Modif / Shift)
- **Azoxystrobin + tebuconazole** (Custodia, Seraphin) – one application only from early flowering onwards until BBCH 75.
- **Benzovindiflupyr + prothioconazole** (Elatus Era and others) – One application only from GS 51 up to and including 20% of pods have reached typical length (GS 72)

Seed treatments

- **Fludioxonil (Prepper)** – a fungicide seed treatment that may give limited control of Fusarium.

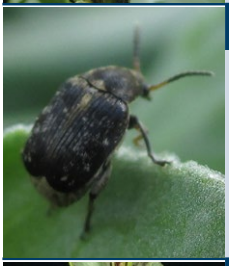
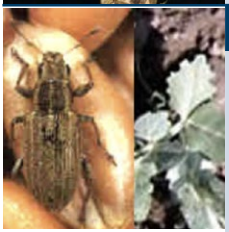
Always check labels carefully.

Research suggests that the best control of chocolate spot and the highest yield response comes from applications at the first pod stage which is often part of a two or three spray programme for the disease.

AT ALL TIMES FOLLOW THE MANUFACTURER'S RECOMMENDATIONS

Pest Control

Pests of winter beans may be soil- or seed-borne, or enter the crop from adjacent fields and margins. Most have a range of other host crops, which act as a source of infestation, which is why crops should be monitored regularly.

	Damage	Favourable conditions	Treatment/ action
	**Black Bean and Pea Aphid – *Aphis fabae***		
	5-10% yield loss and virus transmission	Warm and humid. Early warm weather brings earlier colonisation	Treat 10% plants with colonies at early flowering
	**Bruchid Beetle – *Bruchus rufimanus***		
	Damaged/ contaminated seed reduces value for human consumption (and seed)	Warm sunny weather in May and June, when pods set and develop	Treat at first pod when temperature has reached 20°C for two consecutive days. Repeat after 7 days
	**Stem Nematode – *Dictylenchus dipsaci***		
	Severe yield loss and seed failure	Wet seasons where there is a history of infestation. Infected seed and waterlogged soils	Use tested, clean seed and avoid infected fields for 10 years
	**Pea and Bean weevil – *Sitona lineatus***		
	Yield loss due primarily to larvae feeding on nitrogen fixing root nodules	Warm weather in early spring	Pyrethroid insecticides to target adults in the spring once leaf notches are apparent
	**Slugs**		
	Yield loss due to leaf shredding or complete leaf loss	Heavy clays, wet conditions and cloddy seedbeds on drilling and establishment	Ingestion of pelleted molluscicides

Insect Pest Control

- Cypermethrin
- Deltamethrin
- Esfenvalerate
- **Flupyradifurone** (Sivanto Prime) – an effective aphicide for use from GS 21 (beginning of side-shoot development) to 87 (70% of pods ripe and dark, seeds dry and hard). To protect non-target insects/ arthropods applications must not be made after the 13th July.
- Lambda-cyhalothrin
- **Pirimicarb** (Sivanto Prime) – an effective aphicide. Apply between 1 May and 31 August. The earliest time of use in field beans is GS 51 (first flower buds visible).

Crop Pollination

Beans benefit from pollination by bumble bees and honey bees.

Typically bean crops will only set around 20% of flowers produced. Studies have shown a 25% increase in crops pollinated by honey bees and the presence of bees is said to accelerate the rate of pod set.

Many apiarists offer contract pollination services which are worth pursuing as both parties can benefit.

The long tongued species of bumble bee (*Bombus hoturum* and *B. pascuorum*) are the most prolific of the pollinators of beans.

Bumble bees will pollinate flowers even in rainy conditions. These pollinators can be encouraged but are not yet as commercially available as other bumble species are.

Whether growers choose to introduce hives or not, precautions should be taken to minimise the effect of pesticides sprays on pollinators, especially during flowering, by spraying at times of reduced activity, which is normally when temperatures have dropped below 13℃.

Drying and storage

Harvest

The winter bean harvest usually takes place after wheat from early August into September. Beans are relatively tolerant of wet weather at harvest due to the indehiscent nature of the pods on modern winter bean varieties. Weed-free crops do not usually require desiccation, unless late set pods are still green. Where a desiccant is required, it should be applied when 90% of pods are dry and black.

Pods will be easily threshed and the seed fit for combining at 18% moisture, although a high percentage of green stems may cause combine blockages when crops are particularly dry in the fields. Combine losses can be reduced if the beans are harvested slightly damper in the early morning or evening. To avoid damage use a slow drum speed, with a large mesh concave and appropriate sieves for the large seed.

Drying and Storage

The optimal moisture level for beans is 14%, although many merchants will accept beans at 16% moisture. For long term storage beans must be dried to 14%.

Slow gentle drying is essential with beans. Where the initial moisture content is high, ventilation during drying is crucial. Warmed or ambient air can be used but high temperatures and/or continuous flow driers should be avoided as they tend to cause cracking. Floor ventilated bins or alternatively radial ventilated bins can be used or on floor drying providing the beans are not loaded too deep.

Storage in dark areas is recommended for beans destined for the human consumption market as light will cause beans to discolour.

MAXIMUM DRYING TEMPERATURES FOR SEED AND HUMAN CONSUMPTION BEANS		
Seed	Above 24%	37ºC
Seed	Below 24%	43ºC
Export food use	Above 24%	43ºC
Export food use	Below 24%	49ºC

Growing for export

Ultimately growers aim for the premium markets where possible, to achieve the best results:

- Choose wisely, winter or spring type
- Aim for optimum plant populations
- Keep on top of bruchid control
- Keep crop as clean as possible as long as possible
- If drying – handle with care
- Store away from direct sunlight
- Sell produce to recognised pulse specialists

UK grown dried pulses are sourced and traded to over 30 countries worldwide including faba beans into North Africa and peas into the snack food market in Asia.

UK Pulses – Strategic breeding and supportive research

Innovation on research and development is key to the future success of UK pulse breeding.

UK Pulses is proud is proud to be involved in a collaborative technical alliance with the University of Aberystwyth (IBERS) as part of the joint venture UK Pulses.

This initiative aims to maintain genetic progress and commercial momentum allowing Senova to harness the considerable breeding skills and technical resources at IBERS.

This alliance, together with recent Innovate UK joint funded initiatives and continued collaboration with BBSRC, will extend the genetic resources, leading to new improved and specific varieties with enhanced yields, improved agronomic characters and greater tolerance to disease and pests including stem nematode. These programmes will give direction to best practices in order for growers to optimise the performance from beans and thereby further improve their profitability and crop competitiveness. It is an exciting era for bean development and Senova is confident that this partnership with IBERS will deliver step changes to the field performance of the crop.

PRIFYSGOL ABERYSTWYTH UNIVERSITY

senova

VESPA

Winter Bean

DESCRIPTIVE LIST PGRO 2025

The Winter Bean creating a real buzz!

With the joint highest yields on the PGRO Descriptive List, excellent standing ability and large grain, market leader **Vespa** is the perfect variety for your rotation and the markets.

Winter beans – the perfect fit

- Yield benefit for the following wheat crop
- Low growing cost
- Good break crop gross margin
- Good opportunity to control grass weeds
- Ready markets for feed and export use

Other Senova varieties:

Vincent WINTER BEAN

Miro WINTER BEAN

Ninja WINTER BEAN

Norton WINTER BEAN

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Disclaimer: The information contained in this guide is based solely on research results from public and private experiments. While following the direction offered from that research should increase the statistical likelihood of achieving a desirable outcome, certainty has no part in a biological system. For this reason neither Senova nor any of its Directors or employees will accept any responsibility for actions taken or decisions made on the basis of information contained in this guide. Users of this guide with specific problems are advised to seek appropriate advice.

Senova cannot guarantee that all agrochemicals will remain available. It is vital to read the current labels on the product at time of application. Product information provided in this guide is for the UK only. Always read the label. Use pesticides safely.

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