

# **Grower Summary**

---

## **FV 369**

Broad Beans: Evaluation of  
Varieties

Final 2012

## **Disclaimer**

*AHDB, operating through its HDC division seeks to ensure that the information contained within this document is accurate at the time of printing. No warranty is given in respect thereof and, to the maximum extent permitted by law the Agriculture and Horticulture Development Board accepts no liability for loss, damage or injury howsoever caused (including that caused by negligence) or suffered directly or indirectly in relation to information and opinions contained in or omitted from this document.*

*No part of this publication may be reproduced in any material form (including by photocopy or storage in any medium by electronic means) or any copy or adaptation stored, published or distributed (by physical, electronic or other means) without the prior permission in writing of the Agriculture and Horticulture Development Board, other than by reproduction in an unmodified form for the sole purpose of use as an information resource when the Agriculture and Horticulture Development Board or HDC is clearly acknowledged as the source, or in accordance with the provisions of the Copyright, Designs and Patents Act 1988. All rights reserved.*

*AHDB (logo) is a registered trademark of the Agriculture and Horticulture Development Board. HDC is a registered trademark of the Agriculture and Horticulture Development Board, for use by its HDC division. All other trademarks, logos and brand names contained in this publication are the trademarks of their respective holders. No rights are granted without the prior written permission of the relevant owners.*

The results and conclusions in this report may be based on an investigation conducted over one year. Therefore, care must be taken with the interpretation of the results.

## **Use of pesticides**

Only officially approved pesticides may be used in the UK. Approvals are normally granted only in relation to individual products and for specified uses. It is an offence to use non-approved products or to use approved products in a manner that does not comply with the statutory conditions of use, except where the crop or situation is the subject of an off-label extension of use.

Before using all pesticides check the approval status and conditions of use.

Read the label before use: use pesticides safely.

## **Further information**

If you would like a copy of the full report, please email the HDC office ([hdc@hdc.ahdb.org.uk](mailto:hdc@hdc.ahdb.org.uk)), quoting your HDC number, alternatively contact the HDC at the address below.

HDC  
Stoneleigh Park  
Kenilworth  
Warwickshire  
CV8 2TL

Tel – 0247 669 2051

HDC is a division of the Agriculture and Horticulture Development Board.

**Project Number:** FV 369

**Project Title:** Broad Beans: Evaluation of Varieties

**Project Leader:** Shona Johnson

**Contractor:** Processors and Growers Research Organisation

**Industry Representative:** Matthew Hayward, Swaythorpe Growers Ltd

**Report:** Final report, February 2012

**Publication Date:** 3<sup>rd</sup> January 2012

**Previous report/(s):** Annual Report, February 2011

**Start Date:** 1<sup>st</sup> March 2010

**End Date:** 28<sup>th</sup> February 2012

**Project Cost:** £ 20,092.00

## **Headline**

Growers will have information on previously untested varieties to enable choice of varieties with improved quality and yield. The quality criteria will include those for spring sown crops for the fresh market.

## **Background**

There has been no independent evaluation of broad bean varieties for more than 10 years. During that time there have been a small number of new varieties made available by breeders but they have not been evaluated and compared with existing standard varieties. Prior to this work all trial work has been carried out in continental Europe under very different climatic conditions to those found in the UK.

The results of these trials will enable quality and agronomic characteristics to be analysed to enable varieties to be selected that suit UK conditions. Also some of the quality characteristics could be used to possibly develop new markets for in my case frozen broad beans.” Matthew Hayward Feb 2011.

The freezing market requires a white flowered bean with even seed size and colour. The fresh market requires a pod width and length of defined ranges of dimensions, a minimum number of beans per pod and a seed pod ratio of around 35%. The availability of information on new varieties which couple all these criteria with improved yield or quality will be advantageous. Additional information on disease resistance will also be of help to both organic and non-organic producers. A list of agronomic and quality characteristics of varieties has not been produced since 1998 and information on new varieties will be available at the end of the project.

## **Results**

For full and comprehensive results please refer to the full trial report.

Table of varieties, source, approximate maturity and TSW - 2011

Variety	Source	Approx Maturity (days $\pm$ Listra)	Approx TSW (g)
Monica	Elsoms	-4	1407
<u>Witkiem Manita</u>	<u>Elsoms</u>	<u>-4</u>	1436
Vendor	Holland Select	-3	977
Gold	Nickerson Zwaan	-2	710
Statissa	Pro Veg Seeds	-2	1272
Stereo	Holland Select	-2	686
<u>Listra</u>	<u>Nunhems</u>	<u>0</u>	822
Sirene	Bakker Brothers	-1	811
Suprifin	Holland Select	-1	1287
Finale	Nunhems	+4	655
Scorpio	Holland Select	+7	893
Greeny	Nunhems	+7	662

### **Trials Site details**

PGRO trial ground, Thornhaugh Peterborough PE8 6HJ, on a sandy loam soil type. OS ref TF070017.

### **Production details**

- Sown: 30 March 2011
- Fungicidal seed treatment: thiram
- Broad-leaved weeds were controlled pre-emergence
- Plots were protected with netting
- Pea and bean weevil and pea aphids were controlled with insecticide
- In the absence of any disease no fungicides were applied
- No irrigation was applied

The following varieties were of interest to the industry. Detailed information on all varieties can be found in the full trial report

Table of TSW, % yield, % TR, % beans to whole pods - 2010

Variety	TSW	Harvest1			Harvest 2				
		Maturity (± days)	Yield % of Listra	TR	% beans to whole pods	Maturity (± days)	Yield % of Listra	TR	% beans to whole pods
Monica	1405	-5	109	147	29	-4	90	173	28
<u>Witkiem</u>									
<u>Manita (C)</u>	<u>1205</u>	<u>-4</u>	<u>92</u>	<u>133</u>	<u>27</u>	<u>-3</u>	<u>95</u>	<u>173</u>	<u>31</u>
Vendor	977	-2	93	125	33	-1	103	164	40
Gold	804	-2	76 <sup>-</sup>	122	31	-2	84	144	34
Statissa	1272	-2	79 <sup>-</sup>	118	37	-2	95	144	41
Stereo	686	-2	85	151	27	-2	81	167	29
<u>Listra</u>	<u>822</u>	<u>0</u>	<u>100</u>	<u>131</u>	<u>31</u>	<u>0</u>	<u>100</u>	<u>149</u>	<u>35</u>
			<u>(5.38t/</u>				<u>(6.15t/ha</u>		
		<u>(4/7)</u>	<u>ha)</u>		<u>(6/7)</u>	<u>)</u>			
Sirene	811	0	68 <sup>-</sup>	135	23	0	59 <sup>-</sup>	148	25
Suprifin (C)	1287	0	143 <sup>+</sup>	125	45	-1	136 <sup>+</sup>	167	48
Scorpio	893	+9	68 <sup>-</sup>	131	37	+9	91	143	40
Finale	655	+7	76 <sup>-</sup>	127	35	+7	101	142	47
Greeny	662	+9	90	132	30	+9	64 <sup>-</sup>	143	33

KEY: (C): = Coloured flowered. TSW = Thousand Seed Weight

Yield: <sup>-</sup> significantly lower than Listra @ P = 0.05, <sup>+</sup> significantly greater than Listra @ P = 0.05.

As in 2010 the level of disease was very low or absent. In the exceptionally dry spring, plants were short and while yields were higher than in 2010 they were on the low side. It is probable that the number of pods per plant, length of pods and number of beans per pod were lower than normally seen.

Monika and Witkiem Manita are used mostly for the fresh market

**Monica** was the first variety to mature, five days before Listra and one day before W. Manita. Yields were a little higher than Listra at harvest stage 1 (H1) and a little lower at harvest stage 2 (H2). Yields were similar to W.Manita at H2 and % of beans to pods was similar to W.Manita, but lower than Listra. Pods were quite long and there were few beans per pod. Pods were presented in a horizontal-hanging down position, the same as W.Manita. It was the shortest variety in the trial.

**Witkiem Manita** was coloured flowered and matured 4 days before Listra. Yields were a little lower than Listra. Pods were the longest in the trial there were more beans per pod than Monica. Haulm was similar in length to Listra and a little taller than Monica. Pods were presented in a horizontal-hanging down position and the pods had a snag attachment of 1-2cm, shorter than Monica.

Vendor, Gold, Statissa and Stereo matured 2 days before Listra at H1.

**Vendor** had similar length haulm to Listra. Yields were a little lower than Listra at H1 and a little higher at H2. The % of beans to pods was quite high, 33% (H1) and 40% (H2). Pods were a little shorter than Listra and there were fewer beans per pod. Pods were presented in a horizontal position.

**Gold** was a small seeded variety and had shorter haulm than Listra. Yields were lower than Listra, significantly so at H1. Pods were shorter than Listra, but the number of beans per pod was similar. The % of beans to pods was 31% (H1) and 34% (H2). Gold gave a large increase in the number of pods from H1 to H2. Pods were presented in a horizontal position.

**Statissa** was a large seeded variety and was a little taller than Listra. Yields were significantly lower than Listra at H1, but only a little lower at H2. Pod length and number of beans per pod were similar to Listra at H2. The % of beans to pods was high, 37% (H1) and 41% (H2). Pods were presented in a horizontal position.

**Stereo** gave lower, but not significantly lower yields than Listra, but yields were better than 2010. Plants were a little taller than Listra. Pods were a little shorter than Listra, but there were more of them. The number of beans per pod was similar to Listra. The % of beans to pods was 27% (H1) and 29% (H2). Pods were presented in a vertical position.

**Listra** gave higher yields than 2010 by 2.81 t/ha at H1. Haulm length was shorter than 2010. The % of beans to pods was 31% (H1) and 35% (H2), a little lower than in 2010. On average pods were 12.3cm long, 9 pods per plant and 4.4 beans per pod. Pods were presented in near vertical position.

Sirene and Sprifin matured at the same time as Listra.

**Sirene** as in 2010 gave significantly lower yields than Listra. The % of beans to pods was the lowest in the trial, 23% (H1) and 25% (H2). Haulm length was a little shorter than Listra. Pods were not as long as Listra, but the number of pods per plant and beans per pod were similar to Listra. Pods were presented in a vertical position.

**Suprifin** was coloured flowered and as in 2010 was the highest yielding variety in the trial. Yields were very high and significantly higher than Listra. The % of beans to pods was the highest in the trial, 45% (H1) and 48% (H2). Pods were long and presented in a downward orientation. The number of pods per plant was higher than W,Manita and a little lower than Listra. The number of beans per pod was higher than W. Manita and similar to Listra. Plants were a similar height to Listra.

Finale, Scorpio and Greeny were late maturing varieties. Finale matured 7 days later than Listra while Scorpio and Greeny matured 9 days later than Listra.

**Scorpio** gave significantly low yields at H1. Yields were much better at H2, a little below Listra. The % of beans to pods was high, 37% (H1) and 40% (H2). Plants were a little taller than Listra. Pods were quite short and the number of pods per plant and beans per pod were lower than Listra. Pods were presented in a vertical position.

**Finale** matured late in 2011 whereas in 2010 it matured at the same time as Listra. Yields were poor at H1, significantly lower than Listra. Yields were better at H2, similar to Listra. Pods were presented in a near vertical position. The number of pods per plant and beans per pod were similar to Listra. The % of beans to pods was high, 35% (H1) and 47% (H2). Finale was tall, being 11cm taller than Listra.

**Greeny** was a little lower yielding than Listra at H1, but yields were significantly low at H2. The % of beans to pods was 30% (H1) and 33% (H2). Pods were presented in a vertical position and were the shortest in the trial. The number of pods per plant was similar to



Listra, but there were fewer beans in the pods than Listra. At 61cm, Listra was the tallest variety in the trial. Produce from Greeny has a distinctive, bright green colour.

## **Main conclusions**

Varietal selection is an important and key element of broad bean crop production to ensure a programmed harvest period and to maintain high quality produce. New varieties are chosen by either the processors or by growers in consultation with the processor, or retailer. This will give greater reliability to the results and allow broad beans to be correctly integrated into drilling and harvesting programmes.

Conclusions are drawn from a 2 year summary of varieties evaluated in 2010 - 2011.

Monica and Witliem Manita were the earliest varieties to mature, 4 to 5 days earlier than Listra. Late maturing (Listra +7) varieties were Greeny and Scorpio and could offer advantages in extending the maturity range.

Suprifin (coloured flowered) was a large seeded bean and was the highest yielding variety. Yields were significantly higher than all other varieties in the trial series.

Sirene gave significantly lower yields than Listra.

The % of beans to whole pods was generally high. The varieties giving the highest percentage were Suprifin, Scorpio and Finale (H2 only) with values over 40%.

While plant growth was generally short, Finale and Greeny were the tallest varieties. Gold, Monica and Scorpio were the shortest varieties.

Pod length was generally short. Varieties producing the longest pods were Suprifin, Monica, Witkiem, Manita and Vendor. All gave pods longer than Listra and greater 12cm length.

The number of beans per pod did not vary greatly, but Suprifin gave slightly the highest number 4.5 and 5.2 beans per pod at H1 and H2 respectively.

The number of pods per plant was more varied and ranged at H1 from 3.7 (Monica) to 9.1 (Greeny and Scorpio) and 8.8 (Statissa).

There were some differences between the length of the snag attachment between varieties. This is an important attribute for the fresh industry as it has to be snipped off prior to being sold. Varieties showing a shorter snag attachment were Monica, Witkiem Manita, Statissa, Gold, Suprifin, Finale and Greeny. The colour of Greeny was very distinctive, being bright green.