



Agriculture & Horticulture
DEVELOPMENT BOARD



Grower Summary

FV 348b

Onions - Independent assessment
of field and storage potential of
varieties

Final 2012

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

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Headline

- New varieties add positively to the choices available to growers offering excellent storage potential; a broader range of red varieties; and mildew resistance.
- There is a good range of set varieties in both colour and maturities giving choices and options to spread their harvest windows. Mildew resistant varieties are available.

Background

The aim of the work is to provide independent assessment of the yield, quality and storage potential of new onion varieties propagated from both seed and sets. There are direct comparisons of new and established varieties and growers have the opportunity to inspect the trials at key stages.

Plant breeders continue to develop improved varieties with characteristics that meet grower requirements e.g. high yield, disease resistance, good quality and storability.

Drilled onions account for approximately 70% of the area grown in the UK. Early maturing varieties such as Hybound, Centro and Vision are becoming increasingly popular. Maincrop varieties e.g. Arthur, Hybelle and Renate, still hold a large proportion of the acreage. Late maturing varieties such as Armstrong are still important in extending the harvest window.

Onions grown from sets ensure an early crop which avoids potentially damaging autumn harvest conditions and the earliest of these can attract a premium. In recent years there have been large numbers of new entries with new genetics - in particular those varieties bringing early maturity or mildew resistance.

'Sturon type' varieties continue to dominate the brown set maincrop maturity varieties. However there are very early maturing varieties which produce high yields that are suitable for the autumn markets. The mildew resistant variety Santero also has good storage potential and is a valuable addition for organic growers. Red Baron has previously dominated the red set market but there is strong competition from early maturing material such as Red Emperor and high quality hybrids.

Overwintered onions are still grown on a small scale but there are not enough varieties to warrant evaluation trials.

Summary

Trial site details

Sites were agreed with HDC/BOPA through a steering group, storage was at NIAB in an ambient store and at P G Rix in commercial CE store.

The trials were hosted by (with thanks) and located as follows:

- A W Mortier Farms, nr Hollesley, Suffolk - set onions
- R Oldershaw Farms, nr Weston, Lincolnshire – set onions
- J Raker Farms, Croxton, Norfolk – drilled onions
- P G Rix Farms, nr Gt. Horkesley, Essex – drilled onions

Trial records and data collected – set trials

Table A lists the set varieties in trials in maturity order and selected yield and storage data.

The trials established well in good conditions. A dry spring meant that the Suffolk crop needed irrigating earlier than normal. The Lincs. trial had no irrigation.

The trials were harvested on 10th August (Suffolk) and 11th August (Lincs.). The bulbs were dried and cured before grading. Storage assessments were recorded at the end of February.

Table A: NIAB Spring Planted Onion Trial from Sets 2011 – Varieties, Maturities, Yield & Storage. Varieties in maturity order (mean of both sites)

			Maturity	Yield	Storage
Variety	set source	Seed source	Date of 80% foliage fallover	marketable (t/ha)	% sound bulbs at end Feb
Browns			Mean	Mean	Mean
ABS122	Allium Seeds UK Ltd	Confidential	06-Jul	30.7	7.8
Forum F1	Broer/Elsoms	Bejo/De Groot en Slot	08-Jul	44.9	45.3
Jagro (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	11-Jul	53.7	27.3
Jagro (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	12-Jul	57.1	40.0
Jagro (ESC)	English Set Company	Bejo/De Groot en Slot	15-Jul	57.2	30.3
Alpha	Allium Seeds UK Ltd	Allium Seeds UK Ltd	17-Jul	26.2	65.3
VCS1002	English Set Company	Confidential	19-Jul	39.1	36.0
VCS 1001	English Set Company	Confidential	22-Jul	46.9	66.0
Rumba	Allium Seeds UK Ltd	Allium Seeds UK Ltd	24-Jul	55.3	70.8
Stur BC20	Broer/Elsoms	Bejo/De Groot en Slot	24-Jul	57.1	47.8
VCS 1023	English Set Company	Confidential	26-Jul	53.4	60.3
VCS 6004	English Set Company	Confidential	27-Jul	48.2	60.8
Sturon (ABS)	Allium Seeds UK Ltd	Allium Seeds UK Ltd	28-Jul	59.6	79.3

			Maturity	Yield	Storage
Variety	set source	Seed source	Date of 80% foliage fallover	marketable (t/ha)	% sound bulbs at end Feb
Sturon (ESC)	English Set Company	Confidential	28-Jul	64.8	58.0
VCS 6005	English Set Company	Confidential	03-Aug	53.5	55.0
Santero	English Set Company	Nickerson	07-Aug	46.3	74.3
mean			21-Jul	49.6	51.5
Reds					
Red Emperor (ABS)	Allium Seeds UK Ltd	Enza Zaden	14-Jul	50.7	5.5
Red Emperor (ESC)	English Set Company	Enza Zaden	16-Jul	44.2	19.8
ABS206	Allium Seeds UK Ltd	Confidential	17-Jul	45.0	1.0
Red Baron (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	27-Jul	40.6	40.8
Reddawn F1	Broer/Elsoms	Bejo/De Groot en Slot	29-Jul	54.6	11.3
Kamal	English Set Company	Advanta	03-Aug	50.2	38.8
Red Ray F1	Broer/Elsoms	Bejo/De Groot en Slot	08-Aug	53.9	33.8
Red Baron (ESC)	English Set Company	Bejo/De Groot en Slot	08-Aug	57.2	41.5
Garnet	Allium Seeds UK Ltd	Allium Seeds UK Ltd	09-Aug	55.1	42.5
Red Baron (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	09-Aug	57.2	57.0
mean			29-Jul	50.9	29.2

Lincs. trial planted 10th March except Allium Seeds Red Baron, Garnet, and Elsoms reds 15th March
Suffolk trial planted 3rd March except Allium Seeds Red Baron, Garnet, and Elsoms reds 16th March

Discussion - Set trials

Sets still attract a premium as they are earlier to market than drilled crops and fill a gap when stores are becoming empty.

Santero offered mildew resistance. A dry summer meant that mildew was not an issue in either of the trials.

ABS122 and Forum were the earliest maturing brown variety and the latest was Santero over a month later.

In the red material Red Emperor was the earliest and the rest were 2 weeks to just over 3 weeks later.

The highest yielding brown varieties were Jagro and the Sturon types.

In the red sets the early variety Red Emperor has good yield potential and the main crop Red Baron had the highest yield.

Alpha an early brown variety had a high percentage of sound bulbs at the final storage assessment in February. The Sturon types all have good storage potential. Red Baron and

Garnet had the highest numbers of marketable bulbs of the reds, but generally the reds did not store as well as the browns.

Trial records and data collected –drilled trials

Table B shows key areas of interest - selected yield and storage data. The full report has a full set of data tables (appended).

The trials were harvested on 7th Sept (Norfolk) and 15th Sept (Essex). The wet August meant that harvest was slightly delayed both in the trials and on many commercial holdings.

Table B. NIAB Spring Sown Onion Trials from seed 2011 – Varieties, Maturities, Yield & Storage. Sites: Rix (Essex) and Raker (Norfolk). Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data. Preliminary varieties only single replicate of data (except NIZ 37-83 = 3 reps)

Variety	Source	Maturity Date of 80% foliage fallover	Yield at Essex marketable (t/ha)	Storage % sound bulbs at end April
BROWNS				
Hybing	Bejo	23-Aug	90.3	13.0
Hybound	Bejo	23-Aug	83.4	25.2
Bennito	Seminis	26-Aug	78.5	8.5
Attraction	Syngenta	26-Aug	85.8	37.5
Napoleon	Syngenta	26-Aug	83.1	26.7
Centro	Nickerson	26-Aug	85.9	18.3
Hytech	Bejo	27-Aug	90.5	24.7
Premito	Seminis	27-Aug	84.9	9.2
Wellington	Syngenta	27-Aug	87.0	36.2
Vision	Syngenta	28-Aug	78.4	42.2
Arthur	Advanta	29-Aug	95.9	12.7
Sunskin	Syngenta	30-Aug	85.1	29.8
Hytide	Bejo	31-Aug	83.3	14.2
Motion	Syngenta	31-Aug	86.4	39.2
Hylander	Bejo	02-Sep	78.2	12.2
Santero	Nickerson	02-Sep	84.4	30.8
NIZ 37-83	Nickerson	03-Sep	86.4	30.0
NIZ 37-84	Nickerson	04-Sep	73.2	10.5
<i>RX 1481</i>	<i>Seminis</i>	<i>25-Aug</i>	<i>84.6</i>	<i>8.0</i>
<i>Silverado</i>	<i>Advanta</i>	<i>28-Aug</i>	<i>87.9</i>	<i>12.0</i>
<i>ONL353</i>	<i>Syngenta</i>	<i>29-Aug</i>	<i>87.7</i>	<i>16.0</i>
<i>ONL312</i>	<i>Syngenta</i>	<i>29-Aug</i>	<i>88.7</i>	<i>30.5</i>
<i>RX 0835</i>	<i>Seminis</i>	<i>30-Aug</i>	<i>84.6</i>	<i>9.5</i>
<i>Adv023215</i>	<i>Advanta</i>	<i>03-Sep</i>	<i>77.9</i>	<i>24.0</i>
<i>ONL346</i>	<i>Syngenta</i>	<i>03-Sep</i>	<i>79.1</i>	<i>24.0</i>
<i>Adv053709</i>	<i>Advanta</i>	<i>07-Sep</i>	<i>82.6</i>	<i>19.5</i>
means		29-Aug	84.4	21.7

Variety	Source	Maturity Date of 80% foliage fallover	Yield at Essex marketable (t/ha)	Storage % sound bulbs at end April
REDS				
301/5	Allium Farms	23-Aug	66.0	11.2
Red Tide	Bejo	26-Aug	66.1	19.7
Redspark	Bejo	28-Aug	63.5	19.5
Red Baron	Bejo	31-Aug	72.8	14.7
Retano	Nickerson	02-Sep	65.8	7.7
<i>Red Light</i>	<i>Bejo</i>	30-Aug	68.3	1.0
<i>Garnet</i>	<i>Allium Seeds UK</i>	08-Sep	51.7	9.5
means		30-Aug	67.1	11.9

Discussion - Drilled trials

There is a good range of maturities allowing growers to spread their harvest period. Earlier maturing material suffered from the wet August while some varieties put on extra leaves putting them out of their normal maturity sequence.

For organic growers and for high disease pressure years the mildew resistant varieties Santero and Hylander both offer potential.

There were some problems with establishment in the very dry, warm spring with seed going into good seedbeds but then drying out after the plants had started to emerge.

Hybing was the earliest maturing variety of the drilled trials. However the wet autumn meant that some varieties matured out of sequence.

Due to the low populations in the Norfolk trial the yield data has not been quoted in the report as it could be misleading.

In the Essex trial Arthur, Hytech and Hybing were the highest yielding browns. Red Baron was the highest yielding red variety.

There were some rots and defects in the harvested material of both the drilled trials but not as much as was expected from the harvest after very wet conditions. There were a higher than normal incidence of doubles and some bolting.

Hybound had a high percentage of single centres and had also performed well in 2010.

Storage assessments in an ambient store, were recorded in late-April. Many of the rots were due to bacterial rots and neck rot.

Storage potential continues to be a key factor for drilled crops. Wellington, Vision, Motion and Attraction had the highest percentage of sound bulbs at the late-April assessment. The preliminary variety ONL312 also had very good storage results. Redspark and Red Tide had the best storage results of the reds in the main trial plots.

Stored bulb quality was generally very good throughout most of the varieties. Premito and Red Light were slightly soft.

Wellington, Vision, Motion and Attraction had the highest percentage of sound bulbs from CE storage. The preliminary variety ONL312 also had very good storage results.

Red Light had the highest percentage of sound bulbs in the reds but the bulbs were soft.

In the material from CE store approx 50% of the rots were Fusarium.

Financial Benefits

The yield potential of varieties can vary greatly. In the drilled trials this was >20t/ha between the highest and lowest yields. In the set trials the difference was >35t/ha.

Yield out of store is also important. Drilled material show a difference of 30% between the best and worst storage potential while in the sets this was over 70%.

Mildew resistant varieties require fewer and or cheaper fungicide programmes.

Action Points

- Select a range of varieties with different maturities to spread their harvest.
- Select varieties best suited to their storage facilities.
- For varieties not suited to long term storage growers must be able to sell their produce quickly.
- In high disease pressure years growers should take advantage of material with disease resistance e.g. mildew resistance.