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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

AUTHENTICATION

We declare that this work was done under our supervision according to the procedures described herein and that the report represents a true and accurate record of the results obtained.

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CONTENTS

GROWER SUMMARY.....	1
Headline.....	1
Background.....	1
Summary	2
Table A: NIAB Spring Planted Onion Trial from Sets 2011 – Varieties, Maturities, Yield & Storage. Varieties in maturity order (mean of both sites).....	2
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)	4
Financial Benefits	6
Action Points.....	6
SCIENCE SECTION.....	8
Introduction	8
Materials and methods	8
Table 1. NIAB Spring Sown Onion Trials from seed 2011 – varieties. 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).....	12
Results.....	14
Discussion	14
Conclusions	17
<i>Drilled trials</i>	17
Knowledge and Technology Transfer	19
Appendices	20
Table 1. NIAB Spring Sown Onion Trials from seed 2011 – varieties.....	20
Table 2. NIAB Spring Sown Onion Trials from seed 2011 - Yield data	21
Table 3. NIAB Spring Onion Trials from seed 2011 – Bulb Quality data.....	22
Table 4. NIAB Spring Sown Trials from seed 2011 – vigour and plant characteristics.....	23
Table 5. NIAB Spring Sown Onion Trials from seed 2011 - Onion Ring Data	24
Table 6. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (Ambient)	25
Table 7. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (Ambient)	26
Table 8. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (CE) ...	27
Table 9. NIAB Spring Planted Onion Trial from Sets 2011 - Varieties	28
Table 10. NIAB Spring Planted Onion Trial from Sets 2011 – Yield data	29
Table 11. NIAB Spring Planted Onion Trial from Sets 2011 – Bulb quality data...	30
Table 12. NIAB Spring Planted Onion Trial from Sets 2011 – Onion Ring Data...	31
Table 13. NIAB Spring Planted Onion Trial from Sets 2011 – Storage data (Ambient)	32
Table 14. NIAB Spring Planted Onion Trial from Sets 2011– Storage data (Ambient)	33

GROWER SUMMARY

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 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 as 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

			Maturity	Yield	Storage
Variety	set source	Seed source	Date of 80% foliage fallover	marketable (t/ha)	% sound bulbs at end Feb
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
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>

Variety	Source	Maturity Date of 80% foliage fallover	Yield at Essex marketable (t/ha)	Storage % sound bulbs at end April
<i>ONL312</i>	<i>Syngenta</i>	29-Aug	88.7	30.5
<i>RX 0835</i>	<i>Seminis</i>	30-Aug	84.6	9.5
<i>Adv023215</i>	<i>Advanta</i>	03-Sep	77.9	24.0
<i>ONL346</i>	<i>Syngenta</i>	03-Sep	79.1	24.0
<i>Adv053709</i>	<i>Advanta</i>	07-Sep	82.6	19.5
means		29-Aug	84.4	21.7
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.

SCIENCE SECTION

Introduction

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. Independent trials provide a direct comparison of new and established varieties and afford growers 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. Interest in set trials has increase in recent years with large numbers of new entries with new genetics. In particular varieties bringing earlier maturity and/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 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, maincrop maturity, hybrids.

Materials and methods

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 store.

The trials were hosted and located, with thanks, 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, Nayland, Essex – drilled onions

Production details

All trials adopted the local host farm practice.

Suffolk sets

Site near east coast on a slight slope facing East.

Sandy soil

No major weed issues

No major foliar diseases

Hand planted at 44-46 plants/m²

Irrigated throughout season

Lincolnshire sets

Site open flat field

Silty soil

No major weed issues

No major foliar diseases

Hand planted at 40-42 plants/m²

No irrigation

Norfolk drilled seed

Site on flat field

Light sandy silt soil

No major weed issues

Mildew present but controlled

Drilled browns at 48/m² and reds 44/m²

Delayed harvest due to wet August

Essex drilled seed

Site on flat area of field

Light silt soil

No major weed issues

No major foliar diseases

Drilled browns at 55/m² and reds 48/m²

Irrigated early season to keep trial growing through very dry spring

Delayed harvest due to wet August

Trial design

The main trials were a randomized complete block design.

The set trials had two replicates, of 5 m² plots.

The drilled trials had three replicates, 11 m² plots, in the main trials. Varieties classed as 'preliminary' in the drilled trials were not-replicated but were randomised in a single block.

Presented data is mean values.

Trial records and data collected –set trials

The Suffolk set trial browns and some red entries were planted on 3rd March, the Allium Seeds Red Baron and Garnet and the Elsoms red entries were planted on 16th March.

The Lincs set trial site was too wet for an early planting. All varieties were planted on 10th Mar., the Allium Seeds Red Baron and Garnet and the Elsoms red entries were planted on 15th March.

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.

Plant establishment, vigour, disease incidence, bolters and plant maturity for harvest were all recorded in the field. Neck finish, at full maturity, was also recorded in the field.

The bulk of the trial plots were harvested on 10th August (Suffolk) and 11th August (Lincs.). Individual plots of early maturing varieties were harvest 2 weeks earlier – but only if they had reached 80% maturity. The bulbs were dried and cured before grading.

Grading fractions records included weight by grade size, number of rots, defects and bulb quality. A sample of 100 bulbs from each plot was stored (ambient store) and assessed twice to record the number of sound bulbs, sprouted bulbs, rots and bulb quality.

Trial records and data collected –drilled trials

The drilled trials were sown on 22nd March in Essex and 16th March in Norfolk. Although the trials went into good soils the spring was very dry and the Essex trial was slow to establish. Some plants in the Norfolk trial were lost in the dry conditions where they had emerged but did not have enough moisture to fully establish.

August was wet and meant that harvest was slightly delayed but more importantly the Essex trial saw additional growth. Mildew came into both trials but the fungicide programmes ensured levels did not get too high.

Some varieties put on extra leaves in August and some varieties were out of their normal sequence of maturity. The trials were harvested on 7th Sept (Norfolk) and 15th Sept (Essex).

The adverse harvest conditions affected the storage potential of the Essex trial and this was reflected in the storage assessments. The Essex trial not storing as well as the material from the lighter soils of the Norfolk trial.

In spite of concerns about the quality of produce going into store the UK saw home supply of onions for 50 weeks compared with the average of 46 weeks.

Tables 1 and 9 (appended) list groups of varieties (main trial then preliminaries; browns then reds) in maturity order.

Table 1. NIAB Spring Sown Onion Trials from seed 2011 – varieties. 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	Status	Source	Maturity		
			Date of 80% foliage fallover		
			Essex	Norfolk	Mean
BROWNS					
Hybing	C	Bejo	28-Aug	19-Aug	23-Aug
Hybound	2	Bejo	29-Aug	18-Aug	23-Aug
Bennito	R	Seminis	31-Aug	20-Aug	26-Aug
Attraction	2	Syngenta	29-Aug	23-Aug	26-Aug
Napoleon	R	Syngenta	31-Aug	22-Aug	26-Aug
Centro	R	Nickerson	30-Aug	23-Aug	26-Aug
Hytech	3	Bejo	02-Sep	21-Aug	27-Aug
Premito	2	Seminis	31-Aug	23-Aug	27-Aug
Wellington	R	Syngenta	01-Sep	23-Aug	27-Aug
Vision	C	Syngenta	01-Sep	24-Aug	28-Aug
Arthur	C	Advanta	03-Sep	23-Aug	29-Aug
Sunskin	R	Syngenta	03-Sep	27-Aug	30-Aug
Hytide	1	Bejo	05-Sep	26-Aug	31-Aug
Motion	2	Syngenta	04-Sep	28-Aug	31-Aug
Hylander	3	Bejo	07-Sep	28-Aug	02-Sep
Santero	R	Nickerson	05-Sep	30-Aug	02-Sep
NIZ 37-83	P	Nickerson	06-Sep	30-Aug	03-Sep
NIZ 37-84	1	Nickerson	05-Sep	04-Sep	04-Sep
<i>RX 1481</i>	<i>P</i>	<i>Seminis</i>	31-Aug	20-Aug	25-Aug
<i>Silverado</i>	<i>P</i>	<i>Advanta</i>	06-Sep	20-Aug	28-Aug
<i>ONL353</i>	<i>P</i>	<i>Syngenta</i>	06-Sep	21-Aug	29-Aug
<i>ONL312</i>	<i>P</i>	<i>Syngenta</i>	31-Aug	27-Aug	29-Aug
<i>RX 0835</i>	<i>P</i>	<i>Seminis</i>	06-Sep	23-Aug	30-Aug
<i>Adv023215</i>	<i>P</i>	<i>Advanta</i>	06-Sep	31-Aug	03-Sep
<i>ONL346</i>	<i>P</i>	<i>Syngenta</i>	07-Sep	31-Aug	03-Sep
<i>Adv053709</i>	<i>P</i>	<i>Advanta</i>	10-Sep	05-Sep	07-Sep
means			03-Sep	25-Aug	29-Aug
REDS					
301/5	1	Allium Farms	26-Aug	20-Aug	23-Aug
Red Tide	2	Bejo	01-Sep	19-Aug	26-Aug
Redspark	C	Bejo	02-Sep	23-Aug	28-Aug
Red Baron	C	Bejo	06-Sep	25-Aug	31-Aug
Retano	1	Nickerson	03-Sep	01-Sep	02-Sep
<i>Red Light</i>	<i>P</i>	<i>Bejo</i>	09-Sep	20-Aug	30-Aug
<i>Garnet</i>	<i>P(2)</i>	<i>Allium Seeds UK Ltd</i>	12-Sep	04-Sep	08-Sep
means			04-Sep	25-Aug	30-Aug

Table 9. NIAB Spring Planted Onion Trial from Sets 2011 – Varieties. Varieties in maturity order (mean of both sites)

Variety	set source	Seed source	Maturity		
			Date of 80% foliage fallover		
Browns			Lincs	Suffolk	Mean
ABS123	Allium Seeds UK Ltd	Confidential	05-Jul	08-Jul	06-Jul
Forum F1	Broer/Elsoms	Bejo/De Groot en Slot	06-Jul	11-Jul	08-Jul
Jagro (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	11-Jul	12-Jul	11-Jul
Jagro (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	11-Jul	14-Jul	12-Jul
Jagro (ESC)	English Set Company	Bejo/De Groot en Slot	11-Jul	19-Jul	15-Jul
Alpha	Allium Seeds UK Ltd	Allium Seeds UK Ltd	07-Jul	28-Jul	17-Jul
VCS1002	English Set Company	Confidential	10-Jul	27-Jul	19-Jul
VCS 1001	English Set Company	Confidential	16-Jul	28-Jul	22-Jul
Rumba	Allium Seeds UK Ltd	Allium Seeds UK Ltd	20-Jul	28-Jul	24-Jul
Stur BC20	Broer/Elsoms	Bejo/De Groot en Slot	21-Jul	27-Jul	24-Jul
VCS 1023	English Set Company	Confidential	24-Jul	29-Jul	26-Jul
VCS 6004	English Set Company	Confidential	19-Jul	04-Aug	27-Jul
Sturon (ABS)	Allium Seeds UK Ltd	Allium Seeds UK Ltd	27-Jul	29-Jul	28-Jul
Sturon (ESC)	English Set Company	Confidential	25-Jul	01-Aug	28-Jul
VCS 6005	English Set Company	Confidential	30-Jul	08-Aug	03-Aug
Santero	English Set Company	Nickerson	10-Aug	04-Aug	07-Aug
mean			17-Jul	25-Jul	21-Jul
Reds					
Red Emperor (ABS)	Allium Seeds UK Ltd	Enza Zaden	11-Jul	18-Jul	14-Jul
Red Emperor (ESC)	English Set Company	Enza Zaden	10-Jul	22-Jul	16-Jul
ABS206	Allium Seeds UK Ltd	Confidential	07-Jul	27-Jul	17-Jul
Red Baron (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	19-Jul	03-Aug	27-Jul
Reddawn F1	Broer/Elsoms	Bejo/De Groot en Slot	30-Jul	28-Jul	29-Jul
Kamal	English Set Company	Advanta	28-Jul	10-Aug	03-Aug
Red Ray F1	Broer/Elsoms	Bejo/De Groot en Slot	07-Aug	09-Aug	08-Aug
Red Baron (ESC)	English Set Company	Bejo/De Groot en Slot	06-Aug	11-Aug	08-Aug
Garnet	Allium Seeds UK Ltd	Allium Seeds UK Ltd	08-Aug	10-Aug	09-Aug
Red Baron (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	09-Aug	09-Aug	09-Aug
mean			26-Jul	02-Aug	29-Jul

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

Results

Tables 2 – 8 and 10 - 14 which have all the yield and other performance data are appended at the end of the report (Tables 1 and 9 are repeated).

Discussion

Drilled trials

The Preliminary varieties are only a single plot at each site and so all data should be treated with caution.

Santero and Hylander both have claimed mildew resistance. They remained clear of mildew but there was not enough mildew in either trial to fully test these claims.

There were some problems with establishment in the very dry spring. In hindsight irrigation would have been beneficial to the crops which got off to a good start but then suffered losses in the warm, dry conditions.

Vigour and plant characteristics data are recorded but are not analysed (Table 4). There were no problems with vigour.

Hybing was the earliest maturing variety of the drilled trials. RX 1481 was the earliest maturing variety in the preliminary trials.

Due to the low populations in the Norfolk trial the yield data has not been quoted in the report as it could be misleading (decision of BOPA steering group).

Arthur, Hytech and Hybing were the highest yielding.

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 was a higher than normal incidence of doubles and reports from commercial crops of bolting.

Table 3 details the bulb quality assessments prior to storage.

A small sample of bulbs are cut open to record the numbers of single centres (Table 5) – the sample size is too small to do more than give an indication of which varieties are best suited to producing single centres.

Storage assessments (Tables 6 and 7), in an ambient store, were recorded in mid-March and late-April. Many of the rots were due to bacterial rots and neck rot.

In the material from CE store approx 50% of the rots were caused by Fusarium infection which would lead us to expect that there was a higher incidence of Fusarium than reported. At the time of assessment it was not possible to distinguish between some of the bacterial rots and Fusarium.

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.

A sub-sample of most varieties was stored in a CE store (courtesy of Rix Farms), -0.05°C, 80-85% relative humidity. Bulbs were taken out of store on 28th June and the final assessment on 23rd July has been reported (table 8).

The quality out of CE store was generally as good as the material was going into storage. There were some rotten bulbs – mainly Fusarium and bacterial rots.

Wellington, Vision, Motion and Attraction had the highest percentage of sound bulbs at the July assessment. 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.

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.

All varieties were planted at the same spacing and some varieties such as Jagro would probably be planted at a high density commercially to keep the bulb size down.

Santero is the first commercially produced mildew resistance set but there was not enough mildew in either trial to show its full potential.

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 generally 2 weeks to just over 3 weeks later.

The Lincolnshire trial was very low yielding. Commercially early planted and maturing varieties had good yields.

The highest yielding early brown variety (see table 10) was Jagro. Sturon (from Allium Seed and from English Set Company) gave the highest yields in the main set crop brown varieties. Some of the earlier maturing varieties are disadvantaged slightly by being planted with the later maturing varieties. Generally they have high yields commercially and would be sent straight for sale or processing and not be held as long as these trial methods dictate. An early set trial will be planted in 2012.

A small sample of bulbs are cut open to record the numbers of single centres (Table 12) – the sample size is too small to do more than give an indication of which varieties are best suited to producing single centres.

The early variety Red Emperor has good yield potential and the main crop Red Baron had the highest yield from two of the set companies and the lowest from the other.

Early varieties but need to go straight to market as they are not ideal for storage.

Earlier maturing varieties are prone to rotting as they tend to have thinner skins (table 11) and softer tissue but this is only a problem if growers are considering storing them – which is not how these varieties should be targeted.

Storage assessments, in an ambient store, were recorded in late-January and late-February.

Alpha is an early, brown variety but had a high percentage of sound bulbs at final assessment in February. The Sturon types all have good storage potential – Sturon (Allium Seeds) had the highest percentage of sound bulbs and Santero also performed very well. 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.

Conclusions

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. Neither of the drilled trials had any significant level of mildew and therefore the mildew resistance was not fully demonstrated.

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.

There were no problems with vigour but both trials were drilled in good conditions so weaker varieties were not put under stretching conditions.

Hybing was the earliest maturing variety of the drilled trials. However the wet autumn meant that some varieties matured out of sequence and the preliminary variety data will need supporting data from future trials

Due to the low populations in the Norfolk trial the yield data has not been quoted in the report as it could be misleading (decision of BOPA steering group).

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 was a higher than normal incidence of doubles and NIZ 37-84 had a high percentage of doubles. There was some bolting in the trials and reports from commercial crops of low levels of bolting in Vision.

A small sample of bulbs were cut open to record the numbers of single centres – the sample size was too small to do more than give an indication of which varieties are best suited to producing single centres. Hybound had a high percentage of single centres and had also performed well in 2010.

Storage assessments in an ambient store were recorded in mid-March and late-April. Many of the rots were due to bacterial rots (plus confusing symptoms with Fusarium) and neck rot.

Storage potential continues to be a key factor for drilled crops. The majority of material stores well, in ambient store, until March and early April but then the differences start to appear.

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.

A sub-sample of most varieties was stored in a CE store (courtesy of Rix Farms), -0.05°C, 80-85% relative humidity.

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.

Set trials

Sets still attract a premium as they are earlier to market than drilled crops and fill a gap when stores, of the previous season's crop, 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. Earlier maturing varieties have high yields commercially but need to go straight to market (for sale or processing).

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

Alpha is an early, brown variety but had a high percentage of sound bulbs at the final storage assessment in February. The Sturon types all have good storage potential – Sturon (Allium Seeds) had the highest percentage of sound bulbs and Santero also performed very well. 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.

Knowledge and Technology Transfer

Updates of trial data were circulated to levy payers by HDC and also to sponsoring breeders and seed companies.

Open days were also hosted on four occasions:

1. Set crop field open day in Suffolk – July 2011,
2. Drilled crop field open day in Norfolk – August 2011,
3. Set crop harvested produce open day at NIAB, Cambridge – September 2011,
4. Drilled crop harvested produce open day at NIAB, Cambridge – November 2011.
5. Results available on HDC and NIAB trade stands at Carrot and Onion Conference – November 2011.
6. NIAB Innovation Farm, Horticulture Workshop at NIAB, Cambridge – 1st September 2011.

These events were well attended by a number of growers, seed trade, agronomists, research providers, etc. The farming press always attend the open days and there was significant coverage of the results – particularly in The Vegetable Farmer and Horticulture Week.

The HDC funded NIAB onion trials were mentioned by several of the speakers at the Carrot and Onion Conference as being of significant value to the onion industry.

Seed companies had extracted data from previous HDC reports to promote their varieties.

Appendices

Table 1. NIAB Spring Sown Onion Trials from seed 2011 – varieties

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	Status	Source	Maturity Date of 80% foliage fallover		
			Essex	Norfolk	Mean
BROWNS					
Hybing	C	Bejo	28-Aug	19-Aug	23-Aug
Hybound	2	Bejo	29-Aug	18-Aug	23-Aug
Bennito	R	Seminis	31-Aug	20-Aug	26-Aug
Attraction	2	Syngenta	29-Aug	23-Aug	26-Aug
Napoleon	R	Syngenta	31-Aug	22-Aug	26-Aug
Centro	R	Nickerson	30-Aug	23-Aug	26-Aug
Hytech	3	Bejo	02-Sep	21-Aug	27-Aug
Premito	2	Seminis	31-Aug	23-Aug	27-Aug
Wellington	R	Syngenta	01-Sep	23-Aug	27-Aug
Vision	C	Syngenta	01-Sep	24-Aug	28-Aug
Arthur	C	Advanta	03-Sep	23-Aug	29-Aug
Sunskin	R	Syngenta	03-Sep	27-Aug	30-Aug
Hytide	1	Bejo	05-Sep	26-Aug	31-Aug
Motion	2	Syngenta	04-Sep	28-Aug	31-Aug
Hylander	3	Bejo	07-Sep	28-Aug	02-Sep
Santero	R	Nickerson	05-Sep	30-Aug	02-Sep
NIZ 37-83	P	Nickerson	06-Sep	30-Aug	03-Sep
NIZ 37-84	1	Nickerson	05-Sep	04-Sep	04-Sep
<i>RX 1481</i>	<i>P</i>	<i>Seminis</i>	31-Aug	20-Aug	25-Aug
<i>Silverado</i>	<i>P</i>	<i>Advanta</i>	06-Sep	20-Aug	28-Aug
<i>ONL353</i>	<i>P</i>	<i>Syngenta</i>	06-Sep	21-Aug	29-Aug
<i>ONL312</i>	<i>P</i>	<i>Syngenta</i>	31-Aug	27-Aug	29-Aug
<i>RX 0835</i>	<i>P</i>	<i>Seminis</i>	06-Sep	23-Aug	30-Aug
<i>Adv023215</i>	<i>P</i>	<i>Advanta</i>	06-Sep	31-Aug	03-Sep
<i>ONL346</i>	<i>P</i>	<i>Syngenta</i>	07-Sep	31-Aug	03-Sep
<i>Adv053709</i>	<i>P</i>	<i>Advanta</i>	10-Sep	05-Sep	07-Sep
means			03-Sep	25-Aug	29-Aug
REDS					
301/5	1	Allium Farms	26-Aug	20-Aug	23-Aug
Red Tide	2	Bejo	01-Sep	19-Aug	26-Aug
Redspark	C	Bejo	02-Sep	23-Aug	28-Aug
Red Baron	C	Bejo	06-Sep	25-Aug	31-Aug
Retano	1	Nickerson	03-Sep	01-Sep	02-Sep
<i>Red Light</i>	<i>P</i>	<i>Bejo</i>	09-Sep	20-Aug	30-Aug
<i>Garnet</i>	<i>P(2)</i>	<i>Allium Seeds UK Ltd</i>	12-Sep	04-Sep	08-Sep
means			04-Sep	25-Aug	30-Aug

Table 2. NIAB Spring Sown Onion Trials from seed 2011 - Yield data

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)

Norfolk yield data not published as populations unrepresentative

Variety	Population & Yield											
	plant pop. (palnts / sq. m)			marketable yield (t/ha)			% Rots			total % defects (excl. rots)		
	Rix	Raker	Mean	Rix	Raker	Mean	Rix	Raker	Mean	Rix	Raker	Mean
BROWNS												
Hybing	48	42	45	90.3			1	0	1	1	1	1
Hybound	48	39	44	83.4			0	1	0	0	0	0
Bennito	47	36	41	78.5			0	0	0	1	4	3
Attraction	42	31	37	85.8			0	1	1	0	4	2
Napoleon	48	34	41	83.1			3	0	1	1	5	3
Centro	49	37	43	85.9			1	0	1	0	1	1
Hytech	51	38	45	90.5			1	0	1	1	1	1
Premito	50	39	45	84.9			1	1	1	2	6	4
Wellington	52	34	43	87.0			0	0	0	0	1	1
Vision	44	34	39	78.4			2	0	1	3	7	5
Arthur	51	38	44	95.9			0	0	0	1	7	4
Sunskin	45	33	39	85.1			0	0	0	1	3	2
Hytide	46	39	43	83.3			1	1	1	0	0	0
Motion	40	30	35	86.4			0	0	0	1	2	1
Hylander	43	34	38	78.2			0	0	0	1	1	1
Santero	46	25	36	84.4			2	1	1	0	2	1
NIZ 37-83	42	32	37	86.4			1	0	0	1	2	1
NIZ 37-84	39	30	34	73.2			0	1	1	3	13	8
<i>RX 1481</i>	54	38	46	84.6			2	0	1	1	3	2
<i>Silverado</i>	48	33	41	87.9			0	0	0	0	2	1
<i>ONL353</i>	50	22	36	87.7			0	0	0	0	4	2
<i>ONL312</i>	49	32	41	88.7			0	0	0	1	3	2
<i>RX 0835</i>	45	33	39	84.6			1	0	0	1	5	3
<i>Adv023215</i>	47	35	41	77.9			0	0	0	0	5	3
<i>ONL346</i>	41	34	37	79.1			2	1	1	1	5	3
<i>Adv053709</i>	52	32	42	82.6			0	1	0	0	1	0
means	47	34	40	84.4			1	0	1	1	3	2
REDS												
301/5	43	33	38	66.0			1	0	0	1	1	1
Red Tide	41	28	35	66.1			1	0	1	1	1	1
Redspark	40	36	38	63.5			1	0	0	0	0	0
Red Baron	41	40	41	72.8			1	0	0	1	0	0
Retano	47	31	39	65.8			0	1	0	2	3	2
<i>Red Light</i>	43	27	35	68.3			1	2	1	1	6	3
<i>Garnet</i>	41	24	33	51.7			1	0	0	3	3	3
means	43	33	38	67.1			1	1	1	1	2	1

Table 3. NIAB Spring Onion Trials from seed 2011 – Bulb Quality data

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	Bulb Quality (1-9)														
	Skin Colour 1=pale 9=dark			Skin Protection 1=poor 9=good			Bulb Shape 1=flat 5=round 9=elongate			Uniformity 1=poor 9=good			Firmness 1=poor 9=good		
	Rix	Raker	Av	Rix	Raker	Av	Rix	Raker	Av	Rix	Raker	Av	Rix	Raker	Av
BROWNS															
Hybing	7.0	6.0	6.5	7.0	6.5	6.8	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Hybound	7.0	6.5	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Bennito	7.0	6.5	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Attraction	6.5	6.0	6.3	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Napoleon	6.5	5.5	6.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	6.0	6.5	7.0	7.0	7.0
Centro	6.5	6.0	6.3	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Hytech	6.5	6.0	6.3	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Premito	6.5	5.5	6.0	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Wellington	7.0	6.0	6.5	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Vision	7.0	6.0	6.5	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Arthur	6.5	5.5	6.0	7.0	7.0	7.0	4.5	5.0	4.8	6.0	7.0	6.5	7.0	7.0	7.0
Sunskin	6.5	5.5	6.0	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Hytide	6.5	6.0	6.3	7.0	6.5	6.8	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Motion	7.0	6.5	6.8	7.0	7.0	7.0	4.5	5.0	4.8	7.0	7.0	7.0	7.0	7.0	7.0
Hylander	7.0	6.5	6.8	6.0	7.0	6.5	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Santero	6.5	6.0	6.3	7.0	7.0	7.0	4.5	4.5	4.5	6.0	7.0	6.5	7.0	7.0	7.0
NIZ 37-83	7.0	6.5	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
NIZ 37-84	7.0	6.5	6.8	7.0	7.0	7.0	4.5	5.0	4.8	6.0	7.0	6.5	7.0	7.0	7.0
RX 1481	6.5	7.0	6.8	7.0	7.0	7.0	5.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0
Silverado	6.0	7.0	6.5	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
ONL353	5.5	6.5	6.0	7.0	7.0	7.0	5.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0
ONL312	6.0	7.0	6.5	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
RX 0835	6.0	7.0	6.5	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Adv023215	6.5	7.0	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
ONL346	6.5	7.0	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Adv053709	6.5	7.0	6.8	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
means	6.6	6.3	6.5	7.0	7.0	7.0	4.9	5.0	5.0	6.6	6.9	6.7	7.0	7.0	7.0
REDS															
301/5	5.5	6.0	5.8	7.0	7.0	7.0	4.5	5.0	4.8	7.0	6.0	6.5	7.0	7.0	7.0
Red Tide	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	6.0	6.0	6.0	7.0	7.0	7.0
Redspark	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Red Baron	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	6.0	7.0	6.5	7.0	7.0	7.0
Retano	7.0	7.0	7.0	7.0	7.0	7.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0	7.0	7.0
Red Light	7.0	7.0	7.0	7.0	7.0	7.0	6.0	5.0	5.5	5.0	7.0	6.0	7.0	7.0	7.0
Garnet	7.0	7.0	7.0	7.0	7.0	7.0	5.0	4.5	4.8	5.0	6.0	5.5	7.0	7.0	7.0
means	6.8	6.9	6.8	7.0	7.0	7.0	5.1	4.9	5.0	6.1	6.6	6.4	7.0	7.0	7.0

Table 4. NIAB Spring Sown Trials from seed 2011 – vigour and plant characteristics

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data

Both trials had a full fungicide programme so mildew is only recorded as present or absent

variety	Early vigour 1-9 9=vigourous			Establishment %			Habit/density (July) 1-9 9=dense			Mildew (presence)	
	Rix	Raker	Mean	Rix	Raker	Mean	Rix	Raker	Mean	Rix	Raker
BROWNS											
Hybing	6.7	8.0	7.3	96.7	95.0	95.8	7.7	7.0	7.3		yes
Hybound	7.3	7.0	7.2	95.0	90.0	92.5	7.3	7.0	7.2		yes
Bennito	7.0	7.0	7.0	93.3	88.3	90.8	8.0	7.0	7.5		
Attraction	7.2	7.3	7.3	91.7	81.7	86.7	7.3	7.0	7.2		yes
Napoleon	7.3	7.0	7.2	98.3	90.0	94.2	6.3	7.0	6.7		yes
Centro	7.8	7.0	7.4	98.3	86.7	92.5	7.0	7.0	7.0		
Hytech	7.0	6.7	6.8	100.0	86.7	93.3	6.7	7.0	6.8		
Premito	7.2	7.0	7.1	98.3	93.3	95.8	7.3	7.0	7.2		
Wellington	7.3	7.0	7.2	100.0	90.0	95.0	8.3	7.0	7.7		yes
Vision	7.5	7.0	7.3	100.0	90.0	95.0	8.0	7.0	7.5		
Arthur	7.3	7.3	7.3	98.3	78.3	88.3	8.0	7.0	7.5		yes
Sunskin	6.8	7.0	6.9	96.7	91.7	94.2	6.3	6.7	6.5		yes
Hytide	7.5	7.3	7.4	98.3	90.0	94.2	8.3	7.0	7.7		
Motion	7.3	7.3	7.3	90.0	91.7	90.8	7.0	7.0	7.0		
Hylander	7.5	7.0	7.3	98.3	88.3	93.3	7.7	7.0	7.3		
Santero	7.2	7.0	7.1	100.0	80.0	90.0	8.3	7.0	7.7		
NIZ 37-83	7.3	7.3	7.3	98.3	90.0	94.2	8.0	7.0	7.5		yes
NIZ 37-84	7.0	7.0	7.0	91.7	88.3	90.0	7.3	7.0	7.2		
RX 1481	7.5	7.0	7.3	100.0	90.0	95.0	7.0	7.0	7.0		
Silverado	7.5	7.0	7.3	100.0	95.0	97.5	8.0	7.0	7.5		
ONL353	7.5	7.0	7.3	90.0	95.0	92.5	7.0	7.0	7.0		
ONL312	8.0	7.0	7.5	95.0	80.0	87.5	9.0	7.0	8.0		
RX 0835	7.5	7.0	7.3	100.0	90.0	95.0	8.0	7.0	7.5		
Adv023215	7.5	7.0	7.3	95.0	85.0	90.0	8.0	7.0	7.5		
ONL346	7.5	7.0	7.3	100.0	90.0	95.0	7.0	7.0	7.0		
Adv053709	7.5	7.0	7.3	100.0	80.0	90.0	8.0	7.0	7.5		yes
means	7.3	7.1	7.2	97.1	88.3	92.7	7.6	7.0	7.3		
REDS											
301/5	8.0	7.0	7.5	98.3	91.7	95.0	9.0	7.0	8.0		yes
Red Tide	7.8	6.7	7.3	91.7	88.3	90.0	8.0	7.0	7.5		yes
Redspark	7.7	7.7	7.7	95.0	93.3	94.2	8.3	7.0	7.7		yes
Red Baron	7.8	7.7	7.8	90.0	90.0	90.0	8.0	7.0	7.5	yes	yes
Retano	7.8	7.0	7.4	98.3	88.3	93.3	7.7	6.3	7.0		yes
Red Light	7.0	7.0	7.0	100.0	90.0	95.0	7.0	7.0	7.0		yes
Garnet	7.0	7.0	7.0	100.0	70.0	85.0	8.0	7.0	7.5		yes
means	7.6	7.1	7.4	96.2	87.4	91.8	8.0	6.9	7.5		

Table 5. NIAB Spring Sown Onion Trials from seed 2011 - Onion Ring Data

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data

Variety	% Bulbs with single centres:		
	Essex	Norfolk	Mean
BROWNS			
Hybing	67	69	68
Hybound	76	69	72
Bennito	33	58	46
Attraction	38	58	48
Napoleon	69	16	42
Centro	67	49	58
Hytech	53	51	52
Premito	42	42	42
Wellington	44	40	42
Vision	43	40	42
Arthur	49	49	49
Sunskin	62	51	57
Hytide	56	77	66
Motion	69	53	61
Hylander	53	49	51
Santero	49	43	46
NIZ 37-83	49	53	51
NIZ 37-84	38	83	61
<i>RX 1481</i>	67	47	57
<i>Silverado</i>	40	47	43
ONL353	100	n/a	100
ONL312	53	73	63
<i>RX 0835</i>	47	47	47
<i>Adv023215</i>	53	20	37
ONL346	60	20	40
<i>Adv053709</i>	60	93	77
means	55	50	53
REDS			
301/5	64	56	60
Red Tide	33	49	41
Redspark	52	60	56
Red Baron	49	62	56
Retano	53	60	57
<i>Red Light</i>	13	30	22
<i>Garnet</i>	67	44	56
means	44	53	48

Table 6. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (Ambient)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data

Variety	% sound Late March			% sound End April			% sprouted End April		
	Rix	Raker	Mean	Rix	Raker	Mean	Rix	Raker	Mean
BROWNS									
Hybing	79.7	91.0	85.3	13.0	13.0	13.0	73.1	79.5	76.3
Hybound	87.7	97.0	92.3	15.7	34.7	25.2	75.3	61.9	68.6
Bennito	62.3	93.7	78.0	5.7	11.3	8.5	64.4	84.1	74.2
Attraction	95.0	94.3	94.7	31.7	43.3	37.5	63.1	51.4	57.3
Napoleon	88.0	93.0	90.5	27.0	26.3	26.7	63.6	64.1	63.9
Centro	77.3	87.3	82.3	15.3	21.3	18.3	67.9	72.5	70.2
Hytech	86.0	95.7	90.8	18.3	31.0	24.7	65.9	63.8	64.9
Premito	72.3	84.3	78.3	10.0	8.3	9.2	73.9	79.9	76.9
Wellington	72.0	91.3	81.7	26.7	45.7	36.2	43.0	45.7	44.4
Vision	80.7	83.7	82.2	39.3	45.0	42.2	41.4	37.9	39.6
Arthur	80.0	84.3	82.2	14.3	11.0	12.7	74.5	80.3	77.4
Sunskin	90.7	93.3	92.0	28.0	31.7	29.8	64.1	62.3	63.2
Hytide	76.7	87.7	82.2	7.0	21.3	14.2	81.9	68.8	75.4
Motion	90.7	93.7	92.2	32.0	46.3	39.2	60.1	45.8	52.9
Hylander	71.0	91.0	81.0	9.3	15.0	12.2	67.9	79.1	73.5
Santero	85.0	88.0	86.5	29.7	32.0	30.8	53.1	57.3	55.2
NIZ 37-83	88.0	93.7	90.8	23.7	36.3	30.0	66.3	57.6	62.0
NIZ 37-84	74.7	83.0	78.8	10.7	10.3	10.5	77.3	83.0	80.1
<i>RX 1481</i>	78.0	93.0	85.5	7.0	9.0	8.0	84.2	88.7	86.4
<i>Silverado</i>	81.0	100.0	90.5	9.0	15.0	12.0	80.0	85.1	82.6
<i>ONL353</i>	93.0	96.0	94.5	17.0	15.0	16.0	78.8	81.6	80.2
<i>ONL312</i>	87.0	100.0	93.5	27.0	34.0	30.5	64.0	65.7	64.8
<i>RX 0835</i>	82.0	90.0	86.0	11.0	8.0	9.5	86.5	90.1	88.3
<i>Adv023215</i>	91.0	96.0	93.5	20.0	28.0	24.0	75.2	67.6	71.4
<i>ONL346</i>	95.0	99.0	97.0	19.0	29.0	24.0	71.2	70.0	70.6
<i>Adv053709</i>	82.0	101.0	91.5	11.0	28.0	19.5	73.3	72.3	72.8
means	82.6	92.3	87.5	18.4	25.0	21.7	68.8	69.1	69.0
REDS									
301/5	66.3	89.7	78.0	9.3	13.0	11.2	76.3	80.6	78.5
Red Tide	73.7	93.3	83.5	19.0	20.3	19.7	62.3	69.3	65.8
Redspark	81.3	72.0	76.7	20.0	19.0	19.5	66.2	53.5	59.9
Red Baron	72.7	82.7	77.7	10.7	18.7	14.7	71.3	65.0	68.2
Retano	52.0	88.0	70.0	6.0	9.3	7.7	59.1	81.9	70.5
<i>Red Light</i>	67.0	62.0	64.5	1.0	1.0	1.0	88.2	89.9	89.1
<i>Garnet</i>	79.0	87.0	83.0	5.0	14.0	9.5	89.9	80.0	84.9
means	70.3	82.1	76.2	10.1	13.6	11.9	73.3	74.3	73.8

Table 7. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (Ambient)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data

Variety	Skin finish (1-9) 1=poor			Bulb Firmness (1-9) 1=soft			Mean % rots by type			
	Late April			Late April						
	Rix	Raker	Mean	Rix	Raker	Mean	Neck	Basal	Penicillin	Bacterial
BROWNS										
Hybing	6.0	5.7	5.8	6.0	6.0	6.0	1.2	0.7	1.2	7.6
Hybound	6.3	6.3	6.3	6.0	6.3	6.2	2.0	0.5	0.7	3.2
Bennito	6.0	6.0	6.0	5.7	6.0	5.8	3.8	1.1	2.1	10.4
Attraction	6.7	6.7	6.7	6.7	6.7	6.7	0.2	0.3	0.3	4.5
Napoleon	6.3	6.0	6.2	6.0	6.0	6.0	2.3	0.0	0.2	6.9
Centro	6.3	6.0	6.2	6.0	6.0	6.0	3.9	0.5	0.7	6.4
Hytech	6.0	6.0	6.0	5.3	6.0	5.7	2.3	0.3	0.3	7.6
Premito	5.3	5.7	5.5	5.0	6.0	5.5	3.2	0.7	0.5	9.6
Wellington	6.3	6.3	6.3	5.7	6.3	6.0	4.7	1.2	2.3	11.0
Vision	6.0	6.0	6.0	6.0	6.3	6.2	3.9	1.0	0.3	13.1
Arthur	6.0	5.3	5.7	6.0	6.0	6.0	1.0	0.5	0.7	7.6
Sunskin	6.3	6.0	6.2	6.3	6.0	6.2	1.5	0.0	0.0	5.3
Hytide	5.7	5.3	5.5	5.7	6.0	5.8	2.7	0.0	1.2	6.7
Motion	6.3	6.7	6.5	6.0	6.3	6.2	1.0	0.5	0.7	5.8
Hylander	6.0	6.0	6.0	5.7	6.0	5.8	3.2	0.3	1.7	8.8
Santero	5.3	5.7	5.5	5.7	6.0	5.8	0.5	0.7	0.5	10.9
NIZ 37-83	6.0	6.3	6.2	6.0	6.3	6.2	1.6	1.0	0.8	4.5
NIZ 37-84	5.3	5.7	5.5	6.0	6.0	6.0	1.3	1.0	0.0	6.4
<i>RX 1481</i>	7.0	7.0	7.0	7.0	7.0	7.0	0.0	0.0	0.0	5.5
<i>Silverado</i>	6.0	5.0	5.5	7.0	7.0	7.0	0.5	0.0	0.0	5.0
<i>ONL353</i>	7.0	6.0	6.5	7.0	6.0	6.5	1.0	0.0	0.0	2.5
<i>ONL312</i>	6.0	7.0	6.5	6.0	7.0	6.5	0.5	0.0	0.0	4.5
<i>RX 0835</i>	6.0	5.0	5.5	7.0	6.0	6.5	0.0	0.0	0.0	2.0
<i>Adv023215</i>	7.0	6.0	6.5	7.0	7.0	7.0	0.5	1.0	0.0	3.4
<i>ONL346</i>	7.0	7.0	7.0	7.0	7.0	7.0	1.9	0.0	0.0	3.9
<i>Adv053709</i>	6.0	7.0	6.5	6.0	7.0	6.5	0.5	0.0	0.0	7.4
means	6.2	6.1	6.1	6.1	6.3	6.2	1.7	0.4	0.5	6.6
REDS										
301/5	5.7	6.0	5.8	6.0	6.0	6.0	2.4	0.3	1.9	5.7
Red Tide	5.7	6.0	5.8	6.0	6.0	6.0	6.4	1.8	1.8	4.4
Redspark	5.7	6.0	5.8	5.7	6.0	5.8	7.3	1.4	3.1	8.4
Red Baron	6.0	6.0	6.0	6.0	6.0	6.0	4.9	0.2	5.1	6.9
Retano	5.3	6.0	5.7	5.7	6.0	5.8	5.6	1.5	4.2	10.4
<i>Red Light</i>	5.0	4.0	4.5	5.0	4.0	4.5	0.0	0.0	1.0	9.0
<i>Garnet</i>	6.0	6.0	6.0	7.0	6.0	6.5	0.0	0.0	1.5	4.0
means	5.6	5.7	5.7	5.9	5.7	5.8	3.8	0.7	2.7	7.0

Table 8. NIAB Spring Sown Onion Trials from seed 2011 – Storage data (CE)

Sites: Rix (Essex) – in store until end June 2012

Varieties in maturity order (mean of both sites) Main trial data first then Preliminary trial data

Variety	25 th July			
	Bulb firmness (1-9) 1=soft	% sound	% sprouted	% rots
BROWNS				
Hybing	6.3	25.5	73.5	1.0
Hybound	7.0	26.4	73.6	0.0
Bennito	6.5	11.1	87.9	1.0
Attraction	6.8	43.3	52.2	4.4
Napoleon	6.8	24.7	69.7	5.6
Centro	7.0	17.2	82.8	0.0
Hytech	6.5	15.6	84.4	0.0
Premito	6.5	20.2	78.8	1.0
Wellington	6.5	38.5	55.2	6.3
Vision	6.8	67.8	31.0	1.1
Arthur	6.0	6.0	90.0	4.0
Sunskin	7.0	26.7	70.0	3.3
Hytide	6.8	17.5	81.4	1.0
Motion	6.8	33.7	61.8	4.5
Hylander	6.5	9.3	87.6	3.1
Santero	6.8	16.0	80.9	3.2
NIZ 37-83	6.3	14.5	84.2	1.3
NIZ 37-84	6.5	11.9	85.1	3.0
<i>RX 1481</i>	6.0	15.0	82.5	2.5
<i>Silverado</i>	6.5	18.0	82.0	0.0
<i>ONL353</i>	6.5	20.4	75.5	4.1
<i>ONL312</i>	6.5	35.4	60.4	4.2
<i>RX 0835</i>	6.5	13.7	84.3	2.0
<i>Adv023215</i>	6.0	27.5	65.0	7.5
<i>ONL346</i>	6.0	27.5	72.5	0.0
<i>Adv053709</i>	7.0	28.2	71.8	0.0
means	6.5	23.5	74.0	2.5
REDS				
301/5	6.5	15.0	85.0	0.0
Red Tide	5.8	20.2	68.7	11.1
Redspark	6.0	22.0	70.0	8.0
Red Baron	6.0	10.1	82.8	7.1
Retano	6.8	18.8	80.2	1.0
<i>Red Light</i>	4.0	32.0	60.0	8.0
<i>Garnet</i>	7.0	4.0	96.0	0.0
means	6.0	17.4	77.5	5.0

Table 9. NIAB Spring Planted Onion Trial from Sets 2011 - Varieties

Varieties in maturity order (mean of both sites)

				Maturity	
Variety	set source	Seed source		Date of 80% foliage fallover	
Browns			Lincs	Suffolk	Mean
ABS122	Allium Seeds UK Ltd	Confidential	05-Jul	08-Jul	06-Jul
Forum F1	Broer/Elsoms	Bejo/De Groot en Slot	06-Jul	11-Jul	08-Jul
Jagro (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	11-Jul	12-Jul	11-Jul
Jagro (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	11-Jul	14-Jul	12-Jul
Jagro (ESC)	English Set Company	Bejo/De Groot en Slot	11-Jul	19-Jul	15-Jul
Alpha	Allium Seeds UK Ltd	Allium Seeds UK Ltd	07-Jul	28-Jul	17-Jul
VCS1002	English Set Company	Confidential	10-Jul	27-Jul	19-Jul
VCS 1001	English Set Company	Confidential	16-Jul	28-Jul	22-Jul
Rumba	Allium Seeds UK Ltd	Allium Seeds UK Ltd	20-Jul	28-Jul	24-Jul
Stur BC20	Broer/Elsoms	Bejo/De Groot en Slot	21-Jul	27-Jul	24-Jul
VCS 1023	English Set Company	Confidential	24-Jul	29-Jul	26-Jul
VCS 6004	English Set Company	Confidential	19-Jul	04-Aug	27-Jul
Sturon (ABS)	Allium Seeds UK Ltd	Allium Seeds UK Ltd	27-Jul	29-Jul	28-Jul
Sturon (ESC)	English Set Company	Confidential	25-Jul	01-Aug	28-Jul
VCS 6005	English Set Company	Confidential	30-Jul	08-Aug	03-Aug
Santero	English Set Company	Nickerson	10-Aug	04-Aug	07-Aug
mean			17-Jul	25-Jul	21-Jul
Reds					
Red Emperor (ABS)	Allium Seeds UK Ltd	Enza Zaden	11-Jul	18-Jul	14-Jul
Red Emporer (ESC)	English Set Company	Enza Zaden	10-Jul	22-Jul	16-Jul
ABS206	Allium Seeds UK Ltd	Confidential	07-Jul	27-Jul	17-Jul
Red Baron (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	19-Jul	03-Aug	27-Jul
Reddawn F1	Broer/Elsoms	Bejo/De Groot en Slot	30-Jul	28-Jul	29-Jul
Kamal	English Set Company	Advanta	28-Jul	10-Aug	03-Aug
Red Ray F1	Broer/Elsoms	Bejo/De Groot en Slot	07-Aug	09-Aug	08-Aug
Red Baron (ESC)	English Set Company	Bejo/De Groot en Slot	06-Aug	11-Aug	08-Aug
Garnet	Allium Seeds UK Ltd	Allium Seeds UK Ltd	08-Aug	10-Aug	09-Aug
Red Baron (ABS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	09-Aug	09-Aug	09-Aug
mean			26-Jul	02-Aug	29-Jul

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

Table 10. NIAB Spring Planted Onion Trial from Sets 2011 – Yield data

Varieties in maturity order (mean of both sites)

Marketable yields are adjusted to give a truer representation of early varieties - % rots data removed

Variety	Population & Yield											
	plant pop. (plants / sq. m)			marketable yield (t/ha)			% Rots			% defects (not inc. rots)		
	Lincs	Suffk	Mean	Lincs	Suffk	Mean	Lincs	Suffk	Mean	Lincs	Suffk	Mean
Browns												
ABS122	38.8	42.5	40.7	19.1	42.2	30.7	2.5	0.8	1.7	5.7	1.3	3.5
Forum F1	35.8	41.5	38.6	25.2	64.5	44.9	3.5	4.6	4.1	0.0	0.5	0.3
Jagro (ELS)	32.4	43.1	37.8	23.8	83.6	53.7	8.2	0.3	4.2	0.0	0.5	0.3
Jagro (ABS)	33.3	41.1	37.2	26.1	88.2	57.1	2.6	0.0	1.3	1.1	1.1	1.1
Jagro (ESC)	33.9	41.6	37.8	33.4	81.0	57.2	3.8	0.0	1.9	0.0	0.3	0.1
Alpha	33.1	44.9	39.0	10.6	41.9	26.2	8.9	0.0	4.5	0.3	0.0	0.2
VCS1002	32.5	39.1	35.8	20.9	57.4	39.1	3.3	0.5	1.9	0.0	0.2	0.1
VCS 1001	35.1	39.6	37.3	29.3	64.4	46.9	6.0	0.0	3.0	3.5	0.3	1.9
Rumba	35.4	43.2	39.3	32.6	78.0	55.3	5.9	0.0	3.0	0.3	0.5	0.4
Stur BC20	33.3	43.0	38.2	39.3	74.9	57.1	8.8	0.3	4.5	0.8	0.5	0.6
VCS 1023	33.6	42.2	37.9	37.5	69.3	53.4	10.7	0.3	5.5	1.0	1.6	1.3
VCS 6004	32.1	39.4	35.8	28.5	67.9	48.2	10.8	0.3	5.6	0.9	0.5	0.7
Sturon (ABS)	33.0	42.1	37.6	40.8	78.4	59.6	6.9	0.2	3.5	0.0	0.2	0.1
Sturon (ESC)	33.3	43.0	38.2	39.5	90.0	64.8	13.7	0.7	7.2	3.1	0.0	1.6
VCS 6005	34.7	41.6	38.2	31.8	75.1	53.5	8.3	0.8	4.6	0.7	0.3	0.5
Santero	34.7	37.4	36.1	35.2	57.3	46.3	9.7	2.8	6.2	0.0	0.3	0.2
mean	34.1	41.6	37.8	29.6	69.6	49.6	7.1	0.7	3.9	1.1	0.5	0.8
Reds												
Red Emperor (ABS)	37.0	40.5	38.8	31.0	70.4	50.7	0.3	0.5	0.4	1.8	6.3	4.0
Red Emporer (ESC)	38.7	41.1	39.9	20.5	67.8	44.2	1.5	0.0	0.7	7.8	0.8	4.3
ABS206	32.8	42.3	37.5	29.2	60.9	45.0	0.4	0.3	0.3	0.0	0.0	0.0
Red Baron (ELS)	32.1	37.9	35.0	17.4	63.9	40.6	14.1	0.3	7.2	7.2	7.8	7.5
Reddawn F1	29.7	45.9	37.8	30.1	79.1	54.6	0.0	0.5	0.2	0.4	0.0	0.2
Kamal	31.3	36.9	34.1	30.5	70.0	50.2	12.2	0.9	6.6	4.7	0.3	2.5
Red Ray F1	31.8	41.9	36.9	39.7	68.2	53.9	4.7	0.0	2.3	1.8	9.2	5.5
Red Baron (ESC)	37.1	34.5	35.8	45.5	68.9	57.2	12.9	1.3	7.1	2.0	2.2	2.1
Garnet	35.4	39.6	37.5	35.4	74.9	55.1	14.9	0.3	7.6	0.3	1.0	0.7
Red Baron (ABS)	34.9	43.8	39.4	34.4	79.9	57.2	18.8	0.0	9.4	0.0	5.6	2.8
mean	34.1	40.4	37.3	31.4	70.4	50.9	8.0	0.4	4.2	2.6	3.3	3.0

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

Table 11. NIAB Spring Planted Onion Trial from Sets 2011 – Bulb quality data

Varieties in maturity order (mean of both sites)

Variety	Skin Colour 1=pale 9=dark		Skin Protection 1=poor 9=good		Bulb Shape 1=flat 5=round 9=elongate		Uniformity 1=poor 9=good		Firmness 1=poor 9=good	
	Lincs	Suffk	Lincs	Suffk	Lincs	Suffk	Lincs	Suffk	Lincs	Suffk
Browns										
ABS122	7.0	7.0	4.0	3.0	7.0	7.0	6.0	7.0	6.7	6.0
Forum F1	7.5	7.5	6.0	6.0	5.0	5.0	6.0	6.5	7.0	7.0
Jagro (ELS)	7.0	7.0	7.0	4.0	5.5	5.0	5.0	6.0	7.0	7.0
Jagro (ABS)	7.0	7.5	6.0	6.0	5.5	5.5	5.0	5.5	7.0	6.5
Jagro (ESC)	7.0	7.0	4.0	5.0	5.5	5.0	5.0	5.5	7.0	7.0
Alpha	7.5	7.0	3.0	6.0	6.0	5.0	5.0	6.0	7.0	7.0
VCS1002	7.0	7.5	4.0	7.0	6.0	5.5	5.0	6.0	7.0	6.5
VCS 1001	7.0	7.5	6.0	7.0	5.0	5.0	7.0	6.5	7.0	7.0
Rumba	5.0	5.0	7.0	7.0	4.5	4.5	6.0	6.0	7.0	7.0
Stur BC20	6.0	5.0	7.0	7.0	4.5	5.0	6.5	5.5	7.0	7.0
VCS 1023	6.0	5.0	7.0	7.0	4.0	4.5	6.5	5.5	7.0	7.0
VCS 6004	6.0	6.0	5.0	7.0	4.0	4.0	6.5	6.5	7.0	7.0
Sturon (ABS)	6.0	5.0	7.0	7.0	4.5	5.0	6.0	5.5	7.0	7.0
Sturon (ESC)	6.0	5.0	7.0	7.0	4.0	4.5	7.0	6.0	7.0	7.0
VCS 6005	6.5	6.5	7.0	7.0	4.5	5.0	6.0	5.5	7.0	7.0
Santero	6.0	5.5	7.0	7.0	4.5	4.5	6.0	6.0	7.0	7.0
mean	6.5	6.3	5.9	6.3	5.0	5.0	5.9	6.0	7.0	6.9
Reds										
Red Emperor (ABS)	6.0	5.0	6.0	4.0	4.5	4.5	6.0	6.0	7.0	7.0
Red Emperor (ESC)	6.0	5.0	6.0	5.0	4.5	4.5	6.0	6.0	7.0	7.0
ABS206	5.5	5.0	6.0	5.0	4.5	4.5	6.0	6.0	7.0	7.0
Red Baron (ELS)	7.0	6.0	7.0	6.0	5.0	5.0	5.0	5.5	7.0	6.5
Reddawn F1	7.0	5.5	6.0	5.0	4.5	5.0	6.0	5.5	7.0	7.0
Kamal	7.5	6.0	7.0	6.0	4.0	4.5	7.0	5.0	7.0	7.0
Red Ray F1	8.0	7.0	7.0	7.5	5.0	5.0	6.5	6.5	7.0	6.5
Red Baron (ESC)	7.5	7.0	7.0	7.5	4.5	4.5	5.5	6.0	7.0	7.0
Garnet	7.5	6.5	7.5	7.0	4.0	4.5	6.5	6.0	7.0	7.0
Red Baron (ABS)	8.0	7.0	7.0	7.5	4.0	5.0	5.0	5.0	7.0	7.0
mean	7.0	6.0	6.7	6.1	4.5	4.7	6.0	5.8	7.0	6.9

Table 12. NIAB Spring Planted Onion Trial from Sets 2011 – Onion Ring Data

Varieties in maturity order (mean of both sites)

Variety	% bulbs with single centres		
	Lincs	Suffk	Mean
Browns	83	63	73
ABS122	100	40	70
Forum F1	94	20	57
Jagro (ELS)	100	0	50
Jagro (ABS)	80	37	58
Jagro (ESC)	n/a	77	77
Alpha	100	70	85
VCS1002	n/a	83	83
VCS 1001	60	0	30
Rumba	90	77	83
Stur BC20	43	53	48
VCS 1023	n/a	40	40
VCS 6004	80	42	61
Sturon (ABS)	80	23	52
Sturon (ESC)	60	23	42
VCS 6005	100	77	88
Santero	82	45	62
mean			
Reds			
Red Emperor (ABS)	100	63	85
Red Emperor (ESC)	n/a	60	60
ABS206	100	100	100
Red Baron (ELS)	n/a	73	73
Reddawn F1	100	60	80
Kamal	n/a	40	40
Red Ray F1	97	90	93
Red Baron (ESC)	n/a	73	73
Garnet	73	70	72
Red Baron (ABS)	n/a	67	67
mean	95	70	74

Table 13. NIAB Spring Planted Onion Trial from Sets 2011 – Storage data (Ambient)

Varieties in maturity order (mean of both sites)

	January			February			February % sprouted		
	% sound			% sound					
	Lincs	Suffk	Mean	Lincs	Suffk	Mean	Lincs	Suffk	Mean
Browns									
ABS122	61.0	28.0	44.5	15.5	0.0	7.8	63.3	48.5	55.9
Forum F1	86.5	62.5	74.5	53.0	37.5	45.3	32.3	12.7	22.5
Jagro (ELS)	79.0	90.0	84.5	21.0	33.5	27.3	63.9	27.2	45.6
Jagro (ABS)	81.0	75.0	78.0	31.5	48.5	40.0	52.8	11.2	32.0
Jagro (ESC)	77.0	73.5	75.3	30.0	30.5	30.3	44.9	45.3	45.1
Alpha	70.0	90.5	80.3	51.5	79.0	65.3	25.5	5.0	15.3
VCS1002	77.0	81.5	79.3	33.5	38.5	36.0	52.6	42.7	47.7
VCS 1001	75.5	100.5	88.0	55.5	76.5	66.0	22.8	14.9	18.8
Rumba	91.0	89.0	90.0	66.0	75.5	70.8	19.3	3.0	11.2
Stur BC20	70.0	77.0	73.5	41.5	54.0	47.8	31.8	17.1	24.5
VCS 1023	78.0	91.5	84.8	45.0	75.5	60.3	31.6	4.0	17.8
VCS 6004	54.5	94.0	74.3	41.5	80.0	60.8	20.4	5.0	12.7
Sturon (ABS)	86.0	97.5	91.8	66.5	92.0	79.3	16.4	0.5	8.4
Sturon (ESC)	48.5	90.0	69.3	38.5	77.5	58.0	11.2	4.0	7.6
VCS 6005	70.0	81.5	75.8	48.5	61.5	55.0	19.3	5.5	12.4
Santero	88.5	90.0	89.3	64.5	84.0	74.3	21.8	1.0	11.4
mean	74.6	82.0	78.3	44.0	59.0	51.5	33.1	15.5	24.3
Reds									
Red Emperor (ABS)	46.0	5.0	25.5	11.0	0.0	5.5	44.9	6.1	25.5
Red Emperor (ESC)	77.0	59.0	68.0	19.0	20.5	19.8	56.3	15.4	35.8
ABS206	6.5	9.0	7.8	0.5	1.5	1.0	24.2	28.0	26.1
Red Baron (ELS)	52.5	83.5	68.0	13.5	68.0	40.8	52.5	1.5	27.0
Reddawn F1	29.0	34.0	31.5	16.0	6.5	11.3	12.5	2.7	7.6
Kamal	75.5	80.0	77.8	30.5	47.0	38.8	44.5	5.0	24.7
Red Ray F1	74.0	88.0	81.0	7.5	60.0	33.8	60.5	4.6	32.5
Red Baron (ESC)	50.5	74.5	62.5	35.5	47.5	41.5	19.4	4.2	11.8
Garnet	77.0	74.0	75.5	32.5	52.5	42.5	43.1	11.6	27.4
Red Baron (ABS)	87.0	76.5	81.8	54.5	59.5	57.0	30.2	2.5	16.4
mean	57.5	58.4	57.9	22.1	36.3	29.2	38.8	8.2	23.5

Table 14. NIAB Spring Planted Onion Trial from Sets 2011– Storage data (Ambient)

Varieties in maturity order (mean of both sites)

Variety	February Skin finish (1-9) 1=poor			February Bulb firmness (1-9) 1=poor			February Total % rots		
	Lincs	Suffk	Lincs	Lincs	Suffk	Mean	Lincs	Suffk	Mean
Browns									
ABS122	3.0	-	3.0	3.5	-	3.5	20.8	51.5	36.1
Forum F1	5.0	4.0	4.5	6.5	4.5	5.5	13.5	49.2	31.4
Jagro (ELS)	5.0	5.0	5.0	5.5	4.5	5.0	14.2	41.0	27.6
Jagro (ABS)	5.5	5.0	5.3	6.5	4.5	5.5	14.9	35.1	25.0
Jagro (ESC)	4.5	3.0	3.8	5.5	3.0	4.3	22.4	23.2	22.8
Alpha	4.5	6.0	5.3	6.5	5.5	6.0	3.5	13.9	8.7
VCS1002	2.0	3.0	2.5	4.0	2.5	3.3	10.4	17.2	13.8
VCS 1001	5.5	5.5	5.5	7.0	4.5	5.8	12.3	9.8	11.0
Rumba	6.0	5.0	5.5	7.0	5.0	6.0	11.8	17.5	14.7
Stur BC20	6.5	6.0	6.3	7.0	5.0	6.0	15.5	21.9	18.7
VCS 1023	7.0	6.5	6.8	7.0	6.5	6.8	19.7	20.1	19.9
VCS 6004	6.0	5.5	5.8	7.0	6.5	6.8	12.0	14.6	13.3
Sturon (ABS)	7.0	6.0	6.5	7.5	5.5	6.5	14.5	7.0	10.8
Sturon (ESC)	7.0	6.5	6.8	7.0	6.0	6.5	17.6	17.5	17.6
VCS 6005	6.0	5.5	5.8	7.0	6.0	6.5	24.7	33.4	29.0
Santero	7.0	7.0	7.0	7.0	7.0	7.0	12.7	12.4	12.5
mean	5.5	5.3	5.3	6.3	5.1	5.7	15.0	24.1	19.6
Reds									
Red Emperor (ABS)	5.0	-	5.0	6.0	-	6.0	42.6	93.9	68.3
Red Emperor (ESC)	4.0	3.0	3.5	5.0	4.5	4.8	24.7	63.6	44.2
ABS206	-	4.0	4.0	-	5.0	5.0	75.3	70.5	72.9
Red Baron (ELS)	5.5	5.0	5.3	5.5	4.5	5.0	27.3	30.2	28.8
Reddawn F1	5.0	3.5	4.3	5.0	4.0	4.5	73.9	90.2	82.1
Kamal	5.5	4.5	5.0	6.5	5.0	5.8	18.6	48.0	33.3
Red Ray F1	5.5	5.5	5.5	5.5	5.0	5.3	31.5	34.5	33.0
Red Baron (ESC)	6.5	5.0	5.8	6.0	4.0	5.0	29.5	41.8	35.6
Garnet	5.5	6.0	5.8	6.5	5.5	6.0	22.0	35.7	28.8
Red Baron (ABS)	6.0	5.5	5.8	7.0	4.5	5.8	12.1	36.9	24.5
mean	5.4	4.7	5.0	5.9	4.7	5.3	35.8	54.5	45.1