



Horticultural
Development
Company

FV 201g

Onions – Independent
assessment of field and storage
potential of varieties including
leaf wax assessment.

Project Number: FV 201g

Title: Onions – Independent assessment of field and storage potential of varieties including leaf wax assessment.

Start and end dates: 1 April 2007 to 31 March 2009

Project Leader: Mr Mike Day, NIAB

Project Co-ordinator: Mr Stefan Williams, P.G. Rix

Location: *Sites as agreed with HDC/BOPA, storage at NIAB and a commercial store.*

Background and project objectives

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. This information will be presented to growers via open days and published data.

The contents of this publication are strictly private to HDC members. No part of this publication may be copied or reproduced in any form or by any means without prior written permission of the Horticultural Development Company.

Contents

| | Page |
|--|-------------|
| Spring Sown Onions from Seed 2008 | 1 |
| Spring Sown Onions from Sets 2008 | 8 |
| Onion Storage 2008/2009 – one year results | 12 |
| Appendix | 14 |

Spring Sown Onions from Seed 2008

Introduction and Current Position

Drilling crops from seed remains the major way of establishing commercial Onion crops in England accounting for 70% of the crop. Part of the acreage is grown with early maturing varieties such as **Hybing**, **Wellington** and **Sprinter**. **Vision** is a recent addition to this early selection. The bulk of the maincrop area is dominated by varieties including: **Arthur**, **Sunskin**, **Boston**, **Hybelle** and **Renate**. Later varieties such as **Armstrong** are used to extend the season in suitable locations. Red varieties are increasing in area. Historically **Red Baron** has dominated this crop but now hybrids such as **Redspark** and **Kamal** are increasing annually. Two spring seeded variety trials were grown in 2008 at Great Horkesley in Essex on sandy loam and at Croxton near Thetford, Norfolk on lighter sand.

Cultural Information

| Site | GREAT HORKSLEY, ESSEX (Rix) | CROXTON, NORFOLK (Raker) |
|-------------|--|--|
| Soil | Sandy loam | Light sandy loam |
| Sowing date | 3rd April | 14th March |
| Spacing | 4 rows on 1.84m (72") bed (double rows) | 4 rows on 1.84m (72") bed (double rows) |
| Irrigation | 20mm (/1) | 40mm (/2) |

Comments on the Trials

The Norfolk trial was drilled on 14th March before heavy rain but the Essex trial was not drilled until 3rd April after the rain. The Norfolk trial emerged well but the wet cold April reduced emergence on more bodied soil in Essex. This caused larger bulb sizes than usual. Trials suffered in July heat and the very wet August allowed some Downy Mildew infection in Essex which was held to levels of around 5% by an aggressive spray regime. There were few bolters, pinks or doubles but there was some staining on later lifted material.

The Croxton yields were close to the 10 year average at 59 t/ha whereas the Essex yields were 3% above average at 66 t/ha.

Mean maturities were spot on the 10 year average.

Main trial varieties are grown at three seed rates. Preliminary varieties are only grown in a single replicate. For yield and quality results see Appendix, tables 1 to 4.

Onion Ring and Skin Strength Data

The Norfolk and Essex trials were tested through the Tumbler developed at HRI-Wellesbourne to assess skin strength and adhesion. Also samples were cut horizontally to check the number of centres. See Appendix, table 6.

Emergence, Vigour, Leaf cranking, fineness and habit

These were all recorded in more detail this time and are summarised in the Appendix, table 5.

Comments on the Varieties

Main trial Brown varieties then reds in order of maturity

| VARIETY | SOURCE | COMMENTS |
|----------------------------|-------------------------------|---|
| Main Browns | | |
| Hybing | Bejo | <i>Control.</i> Very early maturity. High yield in Essex. Globe shaped bulbs with moderate skin protection. Not suitable for long term storage. |
| Sprinter | S & G | <i>Control.</i> Early maturity. Above average yields. Very susceptible to downy mildew in Essex last year. Well protected, uniform, dark skinned slightly flattened globe shaped bulbs. Usually has good storage potential. |
| Centro (NIZ 37-58) | Nickerson | Early maturity this time. Below average yield this time but high in 2007. Uniform, well protected, globe shaped bulbs. Above average storage performance in ambient and cold store. |
| Vision | S & G | Early maturity. Erect foliage. Average yields at both sites. Well protected slightly elongated firm bulbs. Good early vigour. Excellent storage |
| Bennito (RX 77796) | Seminis | Early maincrop maturity. Highest yield in Norfolk and overall. Well protected, slightly flattened globe shaped firm bulbs. Average storage performance. |
| Napoleon | S & G | Early maincrop maturity. Erect foliage. Yields high in Essex but below average in Norfolk. A few doubles recorded. Straw coloured, well protected globe shaped firm bulbs. Good storage performance. |
| Arlondo (ADV 01119) | Howe/ Limagrain Advanta | Early maincrop season maturity. Average yields at both sites. A few doublets recorded. Well protected globe shaped bulbs. Mixed storage performance last time. |
| ADV 00335 | Howe/ Limagrain Advanta | Maincrop maturity. Average yields at both sites. Globe shaped bulbs with good uniformity. Below average storage last time. |
| Hytech | Bejo | <i>Control.</i> Maincrop maturity. Good yields at both sites. Slightly elongate bulbs. |
| Hypark | Bejo | Maincrop maturity. Yields just below average at both sites. Slightly elongate bulbs in Essex. Mixed storage performance. |
| Wellington | S & G | <i>Control.</i> Maincrop maturity. Above average yield in Essex. Well protected slightly flattened firm bulbs. Excellent storage performance in ambient and cold store. |
| Premito | Seminis | Mid-season maturity. Good yields at both sites. Well protected globe shaped bulbs. Stored well in preliminary trials. |
| Sunskin | S & G | <i>Control.</i> Maincrop maturity. Average yields overall. Globe shaped, straw coloured bulbs. Erect dark foliage. Good storage performance. |
| Arthur | Howe/ Limagrain Advanta | <i>Control.</i> Mid-season maturity. Good yields at both sites. Slightly flattened firm bulbs. Average storage performance. |
| Tangito | Seminis | Late maincrop maturity. Yield below average in Essex where the population was low, average in Norfolk. Slightly flattened bulbs. Average storage. |
| Sunrito | Seminis | Late maincrop maturity. Low emergence affected yield in Essex but above average yield in Norfolk. Slightly flattened well protected bulbs. |
| Santero NIZ 37-1001 | Nickerson | Late maincrop maturity 2 days after Sunskin. Below average populations and yields at both sites. Slightly flattened globe shaped bulbs. Claimed Downy Mildew resistance and only low levels recorded in 2007. |

| VARIETY | SOURCE | COMMENTS |
|----------------------------------|-------------------------------|---|
| <u>Main Reds</u> | | |
| Reddawn | Bejo | Early maturity with high yields at both sites. Good early vigour. Erect foliage. A few rots and thicknecks. Thin skinned and not suitable for long storage. |
| Redspark | Bejo | Mid-season maturity. Good yields at both sites. A few rotten bulbs. dark good quality bulbs. Good storage performance, better than other red varieties. |
| Kamal | Howe/ Limagrain Advanta | Mid-season maturity. Below average yields this year. Some rots and thicknecks. Rounder than Red Baron. Average storage for a red variety. |
| 301/5 | Allium Farms | Late maincrop maturity. Low population affected yield in Essex but high yield in Norfolk. Bulb quality similar to Red Spark with slightly paler skin. Storage similar to Kamal. |
| Red Baron | Bejo | <i>control red variety</i> . Open pollinated. Late maturity. Susceptible to downy mildew in 2007. Yields just below average for a red variety with some rots and doubles. Slightly elongate with moderate uniformity. Moderate storage potential. |
| <u>Preliminary Browns</u> | | |
| NIZ 37-71 | Nickerson | Early maturity. Very high yield in Essex. Good quality in Norfolk trial |
| AS 08004 | Agriseeds | Early maincrop maturity. Average yields. A few doubles and split bulbs. Moderate skin protection. |
| ADV 36334 | Limagrain Advanta | Early maincrop maturity. Good yield in Essex. Well protected, globe shaped, firm bulbs. |
| Alice | ProVeg | Early maincrop maturity. Below average populations and yields. A few rotten bulbs. Thin skinned bulbs. |
| 55701 | Seminis | Maincrop maturity. Good yield in Essex. Some split bulbs in Norfolk. Globe shaped firm bulbs. |
| NIZ 37-70 | Nickerson | Late maincrop maturity. Good yield in Norfolk with few defects. Well protected globe shaped bulbs. |
| ADV 36393 | Limagrain Advanta | Late maincrop maturity. Above average yields at both sites. Slightly elongate firm bulbs. |
| ADV 02459 | Limagrain Advanta | Late maincrop maturity. Yields just below average at both sites. A few rotten bulbs. Well protected globe shaped bulbs. |

| VARIETY | SOURCE | COMMENTS |
|--------------------------------|--------------|--|
| <u>Preliminary Reds</u> | | |
| Karmen | Proveg | Early maturity. Average yields. A few doubles and rots. Thin skinned slightly flattened bulbs |
| 7-200 | Allium Farms | Maincrop maturity. Average yields. Well protected, globe shaped bulbs. |
| AS 08003 | Agriseeds | Late maincrop maturity. Low population and yield in Essex, average yield in Norfolk. A few doubles recorded. Thin skinned, slightly flattened bulbs. |
| 7-140/21 | Allium Farms | Late maturity. Low populations but good yields with few defects. Globe shaped bulbs. |

Summary of Best Performances in NIAB Onion Trials 2008

| | | | | |
|----------------------|---|---------------------------|--------------------------------------|--------------------------------|
| maturity | <i>established</i> | <i>recent</i> | <i>new year 1</i> | <i>new preliminary</i> |
| <u>Seeded</u> | | | | |
| <i>early</i> | Hybing | Vision | | NIZ 37-71 |
| | Wellington | | | |
| <i>early mid</i> | Boston Centro Hytech Hyfort | Bennito Hypark | | ADV 36334 |
| <i>maincrop</i> | Napoleon Sunskin Tangito Arthur Bugatti Hybelle Renate Armstrong | | Premito Santero | ADV 36393 NIZ 37-70 |
| <u>Reds</u> | | | | |
| <i>early</i> | Reddawn | | | |
| <i>early mid</i> | Red Spark | | | |
| <i>mid</i> | Kamal Red Baron | 301/5 Romy | | |

Index of Varieties in Recent Trials

| Variety | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 301/5 | | | | | | | | | X | X |
| 4/63 | | | | | | | | | X | |
| 55701 | | | | | | | | | | P |
| 7-140/21 | | | | | | | | | | P |
| 7-200 | | | | | | | | | | P |
| Premito (81901) | | | | | | | | | P | X |
| Accent | | P | X | | | | | | | |
| ADV 00335 | | | | | | P | X | X | X | X |
| ADV 01765 | | | | | | | P | | | |
| ADV 01836 | | | | | | | P | X | | |
| ADV 02357 | | | | | | | | P | | |
| ADV 02455 | | | | | | | | P | P | |
| ADV 02459 | | | | | | | | P | | P |
| ADV 19131 | | | | | | | | | P | |
| ADV 36334 | | | | | | | | | | P |
| ADV 36393 | | | | | | | | | | P |
| ADV 98454 | | | | P | | | | | | |
| ADV 98664 | | | | | | | P | X | X | |
| ADV 99398 | | | | | | P | X | | | |
| Alice | | | | | | | | | | P |
| Arenal (94272) | P | X | | X | | | | P | X | |
| Arlondo (01119) | | | | | | P | X | X | X | X |
| Armstrong | X | X | | | | | | | | |
| Arthur (99399) | | | | | P | X | X | X | | X |
| AS 07010 | | | | | | | | | P | |
| AS 07011 | | | | | | | | | P | |
| AS 08003 | | | | | | | | | | P |
| AS 08004 | | | | | | | | | | P |
| AS 99401 | | | | | P | | | | | |
| Avanti | | | | | P | | | | | |
| Baldito | | | | | X | X | | | | |
| Barito | | | | X | X | X | X | X | X | |
| Bennito (77796) | | | | | P | X | X | X | X | X |
| BGS 237 | | | | | | | | X | | |
| Bravo (37/24) | X | X | X | | | | | | | |
| Bugatti (98595) | | | | | P | X | X | X | | |
| Canto (37/40) | | | | P | X | X | X | | | |
| Carlos | | | P | X | | | | | | |
| Centro (37-58) | | | | | | | X | X | X | X |
| Donna | | | | | | P | X | | | |
| Drago (37/31) | | P | | | | | | | | |
| Duetto | X | | | | | | | | | |
| Duroc (96681) | P | P | | X | X | | | | | |
| Friso (37/20) | X | | X | | | | | | | |
| Goldito | X | X | X | | | | | | | |
| Granata | | | | | | | P | | | |
| Hoza | | | | | P | | | | | |
| Hybelle (180) | | | | P | | X | X | | | |
| Hybing | | | | | | P | X | X | X | X |
| Hydawn | | | | | | P | | | | |
| Hyfield | X | X | | | | | | | | |
| Hyfort (158) | | P | X | X | | X | X | X | X | |
| Hyline | | | | | | X | | | | |
| Hypark | | | | | | | | | X | X |

| Variety | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Hyred | | | P | X | X | | | | | |
| Hysam | X | X | X | X | | | | | | |
| Hytech | | | P | | X | X | | | | X |
| Julia (AS 99101) | | | | | P | P | X | | | |
| Kamal | | | | | | P | X | X | X | X |
| Karmen | | | | | | | | | | P |
| Lilia | | | | | | | P | | | |
| Marco | | X | X | X | X | | | | | |
| Napoleon (282) | | | P | X | X | X | X | X | X | X |
| NIZ 37/33 | | P | | | | | | | | |
| NIZ 37-70 | | | | | | | | | | P |
| NIZ 37-71 | | | | | | | | | | P |
| NIZ 37/42 | | | | | | X | | | | |
| Oaklands Red | | | | | | P | | | | |
| Orbito (21894) | X | X | X | X | | | | | | |
| Padana | | | | | | | P | | | |
| Profit (94152) | X | X | X | | | | | | | |
| Proteus (2095) | | | | | | P | X | X | | |
| Red Baron | X | | X | X | X | X | X | X | X | X |
| Red Kite | | | | | P | X | | | | |
| Red Marksman | | | | | | P | | | | |
| Red Pearl | P | | | X | X | X | | | | |
| Reddawn (185) | | | | | | P | X | | | X |
| Redfort | | | | | | P | X | | | |
| Redspark | | | | | | X | X | X | X | X |
| Renate | X | X | | X | X | X | X | X | X | |
| Rolex (99293) | | | | P | X | X | X | | | |
| Romy (9301) | | | | | P | X | X | X | | |
| RS 25493 | P | | | | | | | | | |
| RS 291 | | | | | | P | X | X | | |
| RS 480 | | | | | | P | | | | |
| RS 596 | | | | | | P | | | | |
| RS 92003 | P | | | | | | | | | |
| RX 20094 | X | | | | | | | | | |
| RX 40294 | P | | | | | | | | | |
| Samira (93118) | X | X | | | | | X | X | X | |
| Santero (37-1001) | | | | | | | | X | | X |
| Sherpa | X | X | X | X | X | X | | | | |
| Spirit | X | X | | | | | | | | |
| Sprinter (8278) | | X | X | | | X | X | X | X | X |
| Stamford | X | | | | | | | | | |
| Sunnito (33600) | | | | | | | | | | X |
| Sunskin (8280) | X | X | X | | | | X | X | | X |
| Sweet Domenica | | | | | | P | | | | |
| Tangito (37795) | | | X | X | X | X | | X | X | X |
| Tasco (37/30) | X | X | X | | | | | | | |
| TEX 2210 | | | | | | | | P | | |
| Vares (1000-93) | P | X | X | | | | | | | |
| VDH 94269 | P | | | | | | | | | |
| VDH 95393 | X | X | | | | | | | | |
| VDH 95430 | X | | | | | | | | | |
| VDH 95725 | | P | | | | | | | | |
| VDH 96640 | | | P | | | | | | | |

| Variety | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| VDH 96752 | | P | | | | | | | | |
| VDH 97535 | | | P | | | | | | | |
| VDH 97721 | | | P | | | | | | | |
| VDH 98482 | | | P | P | | | | | | |
| Vento (37/52) | | | | | | X | X | X | | |
| Victory (8279) | X | X | X | | | | | | | |
| Vision | | | | | | | | | X | X |
| Wellington (286) | | | P | X | X | X | X | X | X | X |

Spring Sown Onions from Sets 2008

Introduction and Current Position

Set onions account for 30% of the onion crop and are used where the cost of sets is compensated by their speed off the mark and earlier harvesting. **Sturon** and **Sturon** types currently dominate plantings of brown skinned varieties backed up by an area of earlier varieties such as **Jagro** and **Forum**.

Since **Sturon** became free of Plant Breeders Rights it became available from other seed sources. In addition, sets are being produced in a number of locations so in these trials the performance of both **Jagro** and **Sturon** were compared from three suppliers (Allium & Brassica Supplies, Bejo/Broer and the English Set Company) who produce sets in three locations (France, Holland and England). These trials include some varieties with crosses from different genetic material including the recent very early varieties **ABS 101** and **VCS 6003** as well as **VCS 6004** and **VCS 6005** in the early mid and mid-season slots.

A record number of red varieties were also included in trial, these were heat treated and generally planted later than the brown skinned varieties. The exception was **Reddawn** which was planted at the same time, as the browns.

2008 variety trials were grown on an unirrigated site in Lincolnshire and an irrigated site in Suffolk.

Cultural Information

| | HOLLESLEY, SUFFOLK (Mortier) | WESTON, LINCS (Oldershaw) |
|---------------|--|---|
| Soil | Sandy loam | Silt |
| Planting date | 4 th & 18 th March | 13 th & 19 th March |
| Spacing | 5 rows on 1.85m (72") bed | 5 rows on 1.85m (72") bed |
| Irrigation | 50mm (/3) | Nil |

Comments on the Trials

All varieties were grown from sets graded 17 – 21 mm. Both trials established well. The Lincolnshire trial matured between 27th June and 8th August and produced 53 t/ha (13% up on average). The Suffolk trial matured between 30th June and the 7th August with an average yield of 56 t/ha (7% down on average). Overall there was less mildew than in 2007 but it still caused some problems. Infection levels were kept low due to some aggressive fungicide regimes but some stocks seemed to suffer with systemic infections. Several bulbs had rotted by the time the trials were graded.

Data in Appendix, tables 6-9.

Onion Ring and Centres Data

Samples from each replicate were cut horizontally to check the number of centres, see Appendix Table 9. In general the red varieties had more single centres than the browns. **Jagro** had least single centres.

Comments on the Varieties

in order of maturity

| VARIETY | SET SOURCE | COMMENTS |
|-------------------------------|-------------------|--|
| <u>Brown varieties</u> | | |
| ABS 101 | ABS | Very early maturity. Below average yields in 2008, previously good for an early variety. Thin skinned, globe shaped bulbs. Not suitable for long term storage. High % rots. |
| Forum | Elsoms/ Bejo | Early maturity approx 7-10 days before Jagro. Average yields. Thin skinned, uniform, round bulbs. Not suitable for long term storage. High % rots at Suffolk. Some bolters. |
| Alpha | ABS | Early maturity. Below average yields at Suffolk site. Above average number of bolters at Lincs. site. Pale colour, thin skinned, round bulbs. Slow to sprout in store but can rot. |
| VCS 6003 | ESC | Usually very early maturity (slightly later in Lincs. this time). Below average yields due to high % rots. Thin skinned, round bulbs. Not suitable for long term storage. |
| Jagro | Elsoms/ Bejo | Early/mid maturity. Above average yields. Thinner skinned at Suffolk site. Usually large bulbed. Uniform, round bulbs. Not suitable for long term storage. |
| Jagro | ESC | Early/mid maturity. Average yields. Thinner skinned at Suffolk site. Usually large bulbed. Uniform, round bulbs. Not suitable for long term storage. |
| Jagro | ABS | Early/mid maturity. High yields. Thinner skinned at Suffolk site. Usually large bulbed. Uniform, round bulbs. Not suitable for long term storage. |
| Sturon | ABS | Mid maturity. Above average yields at Suffolk site. Uniform, well protected, round bulbs. Suitable for storage. |
| Hercules | Elsoms/ Bejo | Mid maturity, slightly earlier than some of mid maturity range. Yields lower than Sturon range, below average at Lincs. site. Very uniform well protected globe shaped bulb. |
| Rumba | ABS | Mid maturity. Above average yields. Similar quality to Sturon. Uniform, well protected, round bulbs. Suitable for storage. |
| Setton | ABS | Mid maturity. Sturon type. Above average yields. Similar quality to Sturon. Uniform, well protected, round bulbs. Suitable for storage. |
| Sturon | ESC | Mid maturity. Average yields. Uniform, well protected, round bulbs. Suitable for storage. |
| VCS 6004 | ESC | Mid maturity as Sturon. Good yields. Uniform, flat round bulbs. Suitable for storage. |
| VCS 6005 | ESC | Mid maturity. Good yields. Some bolters. Uniform, round bulbs. |
| Stur BC 20 | Elsoms/ Bejo | Mid maturity. Sturon type. Above average yields. Uniform, well protected, globe shaped bulbs. Suitable for storage. |
| Sturon | ABS | Mid maturity. Above average yields at Suffolk site. Uniform, well protected, round bulbs. Suitable for storage. |
| Hercules | Elsoms/ Bejo | Mid maturity, usually slightly earlier than some of mid maturity range but not this time. Yields lower than Sturon range, below average at Lincs. site. Very uniform well protected globe shaped bulb. |

| VARIETY | SET SOURCE | COMMENTS |
|-----------------------------|-------------------|---|
| Rumba | ABS | Mid maturity. Above average yields. Similar quality to Sturon. Uniform, well protected, round bulbs. Suitable for storage. |
| Setton | ABS | Mid maturity. Sturon type. Above average yields. Similar quality to Sturon. Uniform, well protected, round bulbs. Suitable for storage. |
| Sturon | ESC | Mid maturity. Average yields. Uniform, well protected, round bulbs. Suitable for storage. |
| <u>Red Varieties</u> | | |
| Red Emperor | ESC | <i>Second year in trial.</i> Very early Maturity. High % rots resulted in low yields. Paler, thin skinned, round bulbs. Not suitable for storage. |
| Red Emperor | ABS | <i>First year in trials.</i> Very early Maturity. Average yields. Paler, thin skinned, round bulbs. |
| Reddawn | Elsoms/ Bejo | <i>First year in trials.</i> Very early maturity. Good yields. Uniform, globe shaped bulb. |
| Hyred | Elsoms/ Bejo | Late maturity. Average yields. Uniform, globe shaped bulbs. Good storage performance from 2007 harvest. |
| Romy | ESC | <i>First year in trials.</i> Late maturity. Average yields. Uniform, round bulbs. |
| Red Baron | Elsoms/ Bejo | Open pollinated. Average yields. Round bulbs. |
| Kamal | ESC | Late maturity. Average yields. Uniform round bulb. |
| Red Baron | ABS | Open pollinated. Good yields. Round bulbs. Some bolters. |

Summary of Best Performances

| <u>Browns</u> | <i>established</i> | <i>recent</i> | <i>new</i> |
|----------------------|--|------------------------------------|-------------------|
| <i>early</i> | | ABS 101 VCS 6003 | |
| | Forum Troy Jagro | | |
| <i>early mid</i> | | | |
| <i>mid</i> | Hercules | VCS 6005 VCS 6004 | |
| <i>mid late</i> | Sturon Setton Rumba | | |

| | | | |
|-----------------|--------------------|---------------|------------|
| Red Sets | <i>established</i> | <i>recent</i> | <i>new</i> |
| early | | Red Emperor | Reddawn |
| early mid | Red Baron | | |
| | Hyred | | |
| mid | Kamal | | Romy |

Index of Varieties in Recent Trials (X 4 = 4 set sizes, sources or treatments)

| Variety | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------|------|------|------|------|------|------|------|------|------|------|
| ABS 101 | | | | | | | | X | X | X |
| Alpha | X | X | | X | X | X | X | X | X | X |
| Centurion | | X | X | | | | | | | |
| Forum | | | | | | | X | X | X | X |
| Hercules | | | | X | X 2 | X | X | X | X | X |
| Hyred | | | | | | X | X | X | X | X |
| Hytech | | | | | | | | X | | |
| Jagro | X | X | | X | X | X | X | X3 | X3 | X3 |
| Kamal | | | | | | | | X | X | X |
| Marimba | X | X | X | | X | | | | | |
| Red Baron | | | | X 2 | X 3 | X | X | X | X2 | X2 |
| Reddawn | | | | | | | | | | X |
| Red Emperor | | | | | | | | | X | X2 |
| Red Pearl | | | | | | | X | | | |
| Romy | | | | | | | | | | X |
| Rumba | | X | X | X | X | X | X | X | X | X |
| Setton | X | X | X 3 | X | X 2 | X | X | X | X | X |
| Stur BC 20 | | | | | | | | X | X | X |
| Sturon (Dutch) | X 4 | X 3 | X 4 | X 4 | X 4 | X3 | X3 | | | |
| Sturon (English) | | X | X | X | X | X2 | X3 | X | X | X |
| Sturon (French) | | | | | | X1 | X1 | X2 | X | X |
| Takmark | | | | X | | | | X | | |
| Troy | | | | | | | X | X | X | |
| VCS 309 | | | | | | | | X | | |
| VCS 6003 | | | | | | | | X | X | X |
| VCS 6004 | | | | | | | | X | X | X |
| VCS 6005 | | | | | | | | X | X | X |
| VCS 6162 | | | | | | | | | X | |
| VCS 6164 | | | | | | | | | X | |
| Vsetana | | | | | | X | | | | |

Onion Storage 2008/2009 – one year results.

Introduction

Ambient Regime

NIAB trials are normally stored in an ambient insulated store with frost protection. The small scale plots are not treated with sprout suppressant so results should represent genetic differences.

Bulbs were placed in nets in bulk boxes. Bulbs from the seeded trials were scored in March and the end of April to assess sprouting and rotting levels and those from the set trials were assessed from January to March.

Rots have been classified into Neck rot, soft rot, Basal rot, watery scale, bacterial and Penicillium mould.

Cold Storage

Nets from two replicates of the seeded main and preliminary trials at P.Rix & Sons, Great Horkesley were placed in their commercial box cold store. These were removed in the last week of May and any rots recorded and discarded. Bulbs were assessed for sprouting and rots after 2 and 3 weeks. After three weeks 10 bulbs from each sample were then cut longitudinally and the length of internal sprouts recorded. A "sprouting index" was calculated from these records as a function of incidence and severity. Sound bulbs were scored for bulb firmness.

(see Appendix, table 12)

Trials

Seven trials were stored as follows:

| <i>Trial</i> | <i>sites</i> | <i>table</i> |
|---|---|--|
| Spring seed small plots Main & Preliminary trials | Great Horkesley, Essex. Croxtan, Norfolk | <i>table 10</i> <i>table 11</i> |
| Commercial Cold store | Great Horkesley, Essex | <i>table 12</i> |
| Spring sets | Moulton, Lincolnshire Hollesley, Suffolk | <i>table 13</i> <i>table 14</i> |

Yield and quality data from these trials has been reported previously and are available from HDC or NIAB

All trials were assessed at NIAB

Comments on the Storage Results

Seed

Both trials stored well until mid March with about 90% bulbs sound. By April sprouting levels were high in both trials but especially in the Norfolk bulbs (in ambient conditions.)

Sets

Unlike the previous three years the East Anglian sets did not store as well as the Lincolnshire sets. Rotting levels were already high by January and sprouting high by March.

Commercial Cold Storage

The store environment was:

| <i>Stage</i> | <i>Temperature</i> | <i>Relative humidity</i> |
|---------------------|---------------------------|---------------------------------|
| Stage 2 curing | 27°C | 62-67% |
| Storage | -0.05°C | 80-85% |

When bulbs were removed from cold store at the end of May there was only a trace of visible sprouts but more rots than usual, 24% sprouted after 3 weeks shelf life.

Comments on the Varieties

(all with no sprout suppressant)

Seed

Main trials (tables 10 & 11)

Brown varieties

Vision was again outstanding in both trials with 67% and 39% still sound in the 3rd week of April with no sprout suppressant.

Other varieties that stored well from both sites were **Wellington, Sprinter, Hytech** and **Sunskin**.

Santero stored well from the Essex trial and **Hypark** stored well from the Norfolk trial.

Tangito, ADV 00335, Sunnito, Bennito and **Hybing** stored poorly from both sites.

Red varieties

Red Spark was again the outstanding red variety for storage followed by **Kamal** from Norfolk and 301/5 from Essex. **Reddawn** stored poorly from both sites.

Preliminary trial (tables 10 & 11)

Brown varieties

ADV 36393, NIZ 37-71 and **AS 08004** stored very well from both sites. **ADV 02459** stored well from Essex. **NIZ 37-70** and **Alice** did not store well from both sites.

Red varieties

7-140/21 stored well from both sites, **AS 08003** stored poorly from both sites.

Commercial Cold Storage (table 12)

Brown varieties

Vision was outstanding followed by **Wellington, Sunskin, Sprinter, Napoleon** and **Arthur**. **Premito, Bennito, Tangito** and **Hybing** stored poorly in these conditions.

Red varieties

Red Spark and **Red Baron** were the best of the reds and **Reddawn** the worst.

Sets (tables 13 & 14)

Brown varieties

Sturon types including **Rumba** and **Setton** still set the standard for storage. **VCS 6004** and **6005** also stored quite well until January.

None of the early maturing varieties stored very well but **Alpha** was the best together with some of the **Jagro** stocks.

Red Varieties

Hyred was the best of the reds from Lincs. and **Red Baron** best from Suffolk. The early maturing varieties all stored poorly.

Appendix

Table 1. NIAB SPRING SOWN ONION TRIALS 2008 from seed - Yield data (MAIN TRIALS)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites)

| Variety | Status | Source | Maturity | | | Population & Yield | | | | | | | | | Rots | | | Bolters, Thicknecks, Doubles & Others | | |
|---------------------------|--------|--------|------------------------------|---------------|---------------|-----------------------------|-----------|-----------|-------------------------|-------------|-------------|---------------------------|-----------|-----------|------------|------------|------------|---------------------------------------|------------|------------|
| | | | Date of 80% foliage fallover | | | plant pop. (palnts / sq. m) | | | marketable yield (t/ha) | | | % bulbs >60mm (by weight) | | | | | | | | |
| | | | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean |
| <u>Main Browns</u> | | | | | | | | | | | | | | | | | | | | |
| Hybing | C | BJO | 21-Aug | 16-Aug | 19-Aug | 53 | 49 | 51 | 71.1 | 56.0 | 63.6 | 72 | 60 | 66 | 0.5 | 0.7 | 0.6 | 0.5 | 0.4 | 0.4 |
| Sprinter | C | SEG | 23-Aug | 19-Aug | 21-Aug | 48 | 49 | 48 | 66.7 | 62.9 | 64.8 | 75 | 62 | 69 | 0.8 | 0.1 | 0.5 | 1.3 | 0.4 | 0.9 |
| Centro | 3 | NIZ | 23-Aug | 20-Aug | 21-Aug | 49 | 47 | 48 | 64.4 | 54.0 | 59.2 | 67 | 58 | 63 | 0.9 | 0.0 | 0.5 | 0.5 | 0.6 | 0.6 |
| Vision | 2 | SEG | 22-Aug | 23-Aug | 22-Aug | 44 | 48 | 46 | 66.0 | 59.4 | 62.7 | 82 | 71 | 77 | 0.9 | 0.1 | 0.5 | 0.5 | 0.9 | 0.7 |
| Bennito | R | SEM | 26-Aug | 21-Aug | 23-Aug | 54 | 52 | 53 | 67.7 | 65.1 | 66.4 | 69 | 66 | 67 | 0.5 | 0.4 | 0.5 | 0.1 | 0.8 | 0.5 |
| Napoleon | R | SEG | 25-Aug | 22-Aug | 23-Aug | 55 | 47 | 51 | 71.1 | 48.9 | 60.0 | 65 | 47 | 56 | 2.1 | 0.0 | 1.1 | 1.8 | 0.6 | 1.2 |
| Arlondo | 4 | ADV | 25-Aug | 24-Aug | 24-Aug | 51 | 46 | 48 | 64.3 | 57.9 | 61.1 | 67 | 70 | 69 | 0.9 | 0.6 | 0.7 | 1.6 | 0.5 | 1.0 |
| ADV 00335 | 4 | ADV | 26-Aug | 25-Aug | 25-Aug | 47 | 47 | 47 | 67.6 | 55.8 | 61.7 | 76 | 63 | 69 | 0.3 | 0.0 | 0.1 | 0.2 | 0.8 | 0.5 |
| Hytech | C | BJO | 25-Aug | 26-Aug | 25-Aug | 43 | 45 | 44 | 69.6 | 61.3 | 65.5 | 84 | 70 | 77 | 0.2 | 0.2 | 0.2 | 0.5 | 0.7 | 0.6 |
| Hypark | 2 | BJO | 27-Aug | 26-Aug | 27-Aug | 59 | 46 | 53 | 63.1 | 57.7 | 60.4 | 77 | 71 | 74 | 0.4 | 0.0 | 0.2 | 0.2 | 1.4 | 0.8 |
| Wellington | C | SEG | 29-Aug | 25-Aug | 27-Aug | 53 | 46 | 49 | 67.3 | 58.8 | 63.1 | 74 | 72 | 73 | 0.3 | 0.4 | 0.4 | 0.6 | 0.7 | 0.7 |
| Premito | 1 | SEM | 27-Aug | 28-Aug | 27-Aug | 54 | 48 | 51 | 69.1 | 62.1 | 65.6 | 68 | 70 | 69 | 0.6 | 0.0 | 0.3 | 0.3 | 0.6 | 0.5 |
| Sunskin | R | SEG | 27-Aug | 29-Aug | 28-Aug | 47 | 50 | 49 | 60.7 | 61.6 | 61.2 | 65 | 65 | 65 | 1.1 | 0.0 | 0.5 | 0.9 | 1.7 | 1.3 |
| Arthur | C | ADV | 29-Aug | 28-Aug | 28-Aug | 44 | 48 | 46 | 67.0 | 63.9 | 65.4 | 85 | 74 | 79 | 1.7 | 0.5 | 1.1 | 0.8 | 0.3 | 0.5 |
| Tangito | R | SEM | 31-Aug | 28-Aug | 30-Aug | 39 | 46 | 43 | 63.2 | 58.1 | 60.6 | 86 | 71 | 79 | 0.4 | 0.0 | 0.2 | 1.1 | 0.0 | 0.5 |
| Sunnito | 1 | SEM | 1-Sep | 28-Aug | 30-Aug | 37 | 43 | 40 | 59.0 | 59.6 | 59.3 | 86 | 78 | 82 | 0.0 | 0.4 | 0.2 | 1.1 | 0.6 | 0.8 |
| Santero | 2 | NIZ | 31-Aug | 29-Aug | 30-Aug | 37 | 44 | 40 | 64.5 | 55.8 | 60.1 | 93 | 65 | 79 | 0.3 | 0.0 | 0.2 | 0.2 | 0.8 | 0.5 |
| Means | | | 26-Aug | 24-Aug | 25-Aug | 48 | 47 | 47 | 66.0 | 58.8 | 62.4 | 76 | 67 | 71 | 0.7 | 0.2 | 0.5 | 0.7 | 0.7 | 0.7 |
| <u>Main Reds</u> | | | | | | | | | | | | | | | | | | | | |
| Reddawn | 2 | BJO | 19-Aug | 28-Aug | 23-Aug | 48 | 45 | 46 | 62.1 | 56.6 | 59.4 | 63 | 62 | 62 | 2.7 | 0.2 | 1.4 | 1.6 | 0.7 | 1.1 |
| Red Spark | R | BJO | 28-Aug | 27-Aug | 27-Aug | 46 | 45 | 46 | 57.4 | 55.0 | 56.2 | 64 | 68 | 66 | 2.2 | 0.4 | 1.3 | 0.0 | 0.4 | 0.2 |
| Kamal | 4 | ADV | 28-Aug | 27-Aug | 27-Aug | 49 | 44 | 47 | 43.6 | 50.3 | 47.0 | 34 | 58 | 46 | 2.5 | 0.2 | 1.3 | 1.4 | 1.0 | 1.2 |
| 301/5 | 2 | AFM | 2-Sep | 30-Aug | 31-Aug | 37 | 39 | 38 | 46.5 | 58.6 | 52.6 | 66 | 75 | 71 | 0.2 | 0.4 | 0.3 | 0.9 | 0.6 | 0.8 |
| Red Baron | C | BJO | 3-Sep | 3-Sep | 3-Sep | 42 | 44 | 43 | 51.7 | 51.7 | 51.7 | 59 | 63 | 61 | 0.8 | 0.2 | 0.5 | 1.0 | 1.1 | 1.0 |
| Means | | | 28-Aug | 29-Aug | 28-Aug | 44 | 43 | 44 | 52.3 | 54.4 | 53.4 | 57 | 65 | 61 | 1.7 | 0.3 | 1.0 | 1.0 | 0.7 | 0.9 |

Table 2. NIAB SPRING SOWN ONION TRIALS 2008 from seed - Quality data (MAIN TRIALS)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites)

| Variety | Status | Source | 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 | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean |
| Main Browns | | | | | | | | | | | | | | | | | |
| Hybing | C | BJO | 6.0 | 6.0 | 6.0 | 5.5 | 6.0 | 5.8 | 5.5 | 5.0 | 5.3 | 6.5 | 6.5 | 6.5 | 6.0 | 6.0 | 6.0 |
| Sprinter | C | SEG | 7.0 | 7.0 | 7.0 | 6.5 | 6.5 | 6.5 | 5.0 | 4.5 | 4.8 | 7.0 | 7.0 | 7.0 | 6.5 | 6.5 | 6.5 |
| Centro | 3 | NIZ | 6.0 | 6.0 | 6.0 | 6.5 | 7.0 | 6.8 | 5.0 | 4.5 | 4.8 | 6.5 | 7.0 | 6.8 | 6.5 | 6.5 | 6.5 |
| Vision | 2 | SEG | 6.0 | 6.5 | 6.3 | 6.5 | 7.0 | 6.8 | 5.5 | 5.0 | 5.3 | 7.0 | 6.5 | 6.8 | 7.0 | 6.5 | 6.8 |
| Bennito | R | SEM | 6.0 | 6.5 | 6.3 | 7.0 | 7.0 | 7.0 | 5.0 | 4.5 | 4.8 | 6.0 | 7.0 | 6.5 | 6.5 | 6.5 | 6.5 |
| Napoleon | R | SEG | 6.0 | 6.0 | 6.0 | 7.0 | 7.0 | 7.0 | 4.5 | 4.5 | 4.5 | 6.5 | 7.0 | 6.8 | 7.0 | 7.0 | 7.0 |
| Arlondo | 4 | ADV | 6.5 | 6.5 | 6.5 | 7.0 | 7.5 | 7.3 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 6.8 | 7.0 | 6.5 | 6.8 |
| ADV 00335 | 4 | ADV | 6.0 | 6.5 | 6.3 | 6.0 | 7.0 | 6.5 | 5.0 | 4.5 | 4.8 | 7.0 | 7.0 | 7.0 | 7.0 | 6.5 | 6.8 |
| Hytech | C | BJO | 6.0 | 6.5 | 6.3 | 6.0 | 6.5 | 6.3 | 5.5 | 5.0 | 5.3 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| Hypark | 2 | BJO | 5.0 | 6.0 | 5.5 | 6.0 | 6.0 | 6.0 | 6.0 | 4.5 | 5.3 | 6.5 | 7.0 | 6.8 | 6.5 | 7.0 | 6.8 |
| Wellington | C | SEG | 6.5 | 6.0 | 6.3 | 6.5 | 7.0 | 6.8 | 5.0 | 4.5 | 4.8 | 6.5 | 7.0 | 6.8 | 7.0 | 7.0 | 7.0 |
| Premito | 1 | SEM | 6.0 | 6.0 | 6.0 | 6.5 | 7.0 | 6.8 | 5.5 | 5.0 | 5.3 | 7.0 | 6.5 | 6.8 | 7.0 | 7.0 | 7.0 |
| Sunskin | R | SEG | 5.5 | 6.0 | 5.8 | 6.5 | 6.5 | 6.5 | 5.0 | 5.0 | 5.0 | 7.0 | 6.5 | 6.8 | 7.0 | 6.5 | 6.8 |
| Arthur | C | ADV | 6.0 | 6.0 | 6.0 | 6.5 | 6.0 | 6.3 | 5.0 | 4.5 | 4.8 | 6.5 | 6.5 | 6.5 | 7.0 | 7.0 | 7.0 |
| Tangito | R | SEM | 5.5 | 6.5 | 6.0 | 6.5 | 7.0 | 6.8 | 5.0 | 4.5 | 4.8 | 6.0 | 6.0 | 6.0 | 6.5 | 6.5 | 6.5 |
| Sunnito | 1 | SEM | 6.0 | 6.5 | 6.3 | 6.5 | 7.0 | 6.8 | 5.0 | 4.0 | 4.5 | 6.5 | 6.0 | 6.3 | 6.5 | 7.0 | 6.8 |
| Santero | 2 | NIZ | 5.5 | 6.0 | 5.8 | 7.0 | 7.0 | 7.0 | 5.0 | 4.5 | 4.8 | 6.5 | 6.0 | 6.3 | 7.0 | 7.0 | 7.0 |
| Means | | | 6.0 | 6.3 | 6.1 | 6.5 | 6.8 | 6.6 | 5.1 | 4.6 | 4.9 | 6.6 | 6.6 | 6.6 | 6.7 | 6.7 | 6.7 |
| Main Reds | | | | | | | | | | | | | | | | | |
| Reddawn | 2 | BJO | 7.0 | 5.5 | 6.3 | 5.0 | 5.5 | 5.3 | 5.0 | 4.5 | 4.8 | 6.0 | 5.5 | 5.8 | 6.5 | 5.5 | 6.0 |
| Red Spark | R | BJO | 7.0 | 7.0 | 7.0 | 6.5 | 7.0 | 6.8 | 5.0 | 4.5 | 4.8 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| Kamal | 4 | ADV | 6.5 | 6.0 | 6.3 | 4.5 | 6.5 | 5.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| 301/5 | 2 | AFM | 6.0 | 6.0 | 6.0 | 6.5 | 6.5 | 6.5 | 5.0 | 4.5 | 4.8 | 7.0 | 6.5 | 6.8 | 6.5 | 6.5 | 6.5 |
| Red Baron | C | BJO | 7.0 | 6.5 | 6.8 | 6.0 | 6.5 | 6.3 | 5.0 | 4.5 | 4.8 | 5.0 | 5.0 | 5.0 | 6.0 | 6.5 | 6.3 |
| Means | | | 6.7 | 6.2 | 6.5 | 5.7 | 6.4 | 6.1 | 5.0 | 4.6 | 4.8 | 6.2 | 6.0 | 6.1 | 6.4 | 6.3 | 6.4 |

Table 3. NIAB SPRING SOWN ONION TRIALS 2008 from seed - Yield data (PRELIMINARY TRIALS)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites)

| Variety | Status | Source | Maturity | | | Population & Yield | | | | | | | | | Rots | | | Bolters, Thicknecks, Doubles & Others | | | | |
|---------------------------------|--------|--------|------------------------------|---------------|---------------|-----------------------------|-----------|-----------|-------------------------|-------------|-------------|---------------------------|-----------|-----------|------------|------------|------------|---------------------------------------|------------|------------|-----|-------|
| | | | Date of 80% foliage fallover | | | plant pop. (plants / sq. m) | | | marketable yield (t/ha) | | | % bulbs >60mm (by weight) | | | | | | | | | | |
| | | | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker |
| <u>Preliminary trial</u> | | | | | | | | | | | | | | | | | | | | | | |
| Browns | | | | | | | | | | | | | | | | | | | | | | |
| NIZ37-71 | P | NIZ | 19-Aug | 22-Aug | 20-Aug | 49 | 48 | 48 | 76.3 | 50.2 | 63.2 | 80 | 48 | 64 | 0.4 | 0.0 | 0.2 | 0.4 | 0.9 | 0.7 | | |
| AS08004 | P | AGR | 21-Aug | 30-Aug | 25-Aug | 42 | 45 | 43 | 66.2 | 54.2 | 60.2 | 85 | 68 | 77 | 0.0 | 0.0 | 0.0 | 2.6 | 4.4 | 3.5 | | |
| ADV36334 | P | ADV | 27-Aug | 24-Aug | 25-Aug | 48 | 45 | 47 | 71.4 | 53.9 | 62.6 | 76 | 61 | 68 | 1.8 | 0.0 | 0.9 | 0.0 | 0.5 | 0.2 | | |
| ALICE | P | PRO | 24-Aug | 27-Aug | 25-Aug | 37 | 45 | 41 | 54.3 | 48.8 | 51.6 | 79 | 61 | 70 | 1.8 | 1.0 | 1.4 | 0.6 | 0.5 | 0.5 | | |
| 55701 | P | SEM | 29-Aug | 27-Aug | 28-Aug | 44 | 46 | 45 | 71.7 | 48.7 | 60.2 | 84 | 62 | 73 | 0.0 | 0.0 | 0.0 | 1.0 | 3.8 | 2.4 | | |
| NIZ37-70 | P | NIZ | 27-Aug | 02-Sep | 30-Aug | 43 | 51 | 47 | 68.1 | 60.9 | 64.5 | 86 | 67 | 76 | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | | |
| ADV36393 | P | ADV | 02-Sep | 30-Aug | 31-Aug | 46 | 50 | 48 | 69.4 | 58.0 | 63.7 | 77 | 57 | 67 | 0.0 | 0.0 | 0.0 | 0.9 | 0.9 | 0.9 | | |
| ADV02459 | P | ADV | 30-Aug | 02-Sep | 31-Aug | 44 | 45 | 44 | 67.2 | 50.7 | 58.9 | 83 | 51 | 67 | 0.5 | 1.4 | 1.0 | 0.5 | 1.0 | 0.7 | | |
| Means | | | 26-Aug | 28-Aug | 27-Aug | 44 | 47 | 45 | 68.1 | 53.2 | 60.6 | 81 | 59 | 70 | 0.6 | 0.3 | 0.4 | 0.7 | 1.5 | 1.1 | | |
| Reds | | | | | | | | | | | | | | | | | | | | | | |
| Karmen | P | PRO | 24-Aug | 19-Aug | 21-Aug | 42 | 43 | 43 | 49.4 | 48.6 | 49.0 | 58 | 45 | 51 | 2.1 | 0.0 | 1.0 | 2.1 | 1.0 | 1.5 | | |
| 7-200 | P | AFM | 29-Aug | 23-Aug | 26-Aug | 40 | 40 | 40 | 52.2 | 49.8 | 51.0 | 62 | 68 | 65 | 0.0 | 0.0 | 0.0 | 1.1 | 1.6 | 1.3 | | |
| AS08003 | P | AGR | 30-Aug | 01-Sep | 31-Aug | 38 | 46 | 42 | 44.3 | 51.0 | 47.6 | 50 | 59 | 54 | 0.6 | 0.5 | 0.5 | 3.4 | 1.4 | 2.4 | | |
| 7-140/21 | P | AFM | 06-Sep | 01-Sep | 03-Sep | 37 | 38 | 37 | 51.7 | 60.2 | 56.0 | 73 | 86 | 80 | 0.6 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | | |
| Means | | | 30-Aug | 26-Aug | 28-Aug | 39 | 42 | 41 | 49.4 | 52.4 | 50.9 | 61 | 65 | 63 | 0.8 | 0.1 | 0.5 | 1.6 | 1.0 | 1.3 | | |

Table 4. NIAB SPRING SOWN ONION TRIALS 2008 from seed - Quality data (PRELIMINARY TRIALS)

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites)

| Variety | Status | Source | 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 | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean | Rix | Raker | Mean |
| <u>Preliminary trial</u> | | | | | | | | | | | | | | | | | |
| Browns | | | | | | | | | | | | | | | | | |
| NIZ37-71 | P | NIZ | 5.5 | 6.0 | 5.8 | 5.0 | 7.0 | 6.0 | 5.5 | 4.5 | 5.0 | 6.5 | 6.5 | 6.5 | 6.5 | 7.0 | 6.8 |
| AS08004 | P | AGR | 5.0 | 6.0 | 5.5 | 4.5 | 6.0 | 5.3 | 5.0 | 4.5 | 4.8 | 6.5 | 6.0 | 6.3 | 6.5 | 6.5 | 6.5 |
| ADV36334 | P | ADV | 5.5 | 6.5 | 6.0 | 6.0 | 7.0 | 6.5 | 5.0 | 5.0 | 5.0 | 6.5 | 6.0 | 6.3 | 7.0 | 7.0 | 7.0 |
| ALICE | P | PRO | 5.0 | 6.0 | 5.5 | 4.0 | 4.0 | 4.0 | 5.0 | 4.5 | 4.8 | 6.0 | 5.5 | 5.8 | 6.5 | 6.5 | 6.5 |
| 55701 | P | SEM | 5.5 | 6.5 | 6.0 | 6.0 | 6.5 | 6.3 | 5.0 | 4.5 | 4.8 | 6.5 | 6.0 | 6.3 | 7.0 | 7.0 | 7.0 |
| NIZ37-70 | P | NIZ | 5.5 | 6.5 | 6.0 | 6.5 | 7.0 | 6.8 | 5.0 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 | 7.0 | 7.0 | 7.0 |
| ADV36393 | P | ADV | 5.5 | 6.0 | 5.8 | 6.0 | 6.5 | 6.3 | 5.5 | 5.0 | 5.3 | 6.5 | 6.5 | 6.5 | 7.0 | 7.0 | 7.0 |
| ADV02459 | P | ADV | 6.0 | 6.5 | 6.3 | 6.5 | 7.0 | 6.8 | 5.0 | 5.0 | 5.0 | 6.5 | 7.0 | 6.8 | 7.0 | 7.0 | 7.0 |
| Brown means | | | 5.4 | 6.3 | 5.8 | 5.6 | 6.4 | 6.0 | 5.1 | 4.8 | 4.9 | 6.4 | 6.3 | 6.3 | 6.8 | 6.9 | 6.8 |
| Reds | | | | | | | | | | | | | | | | | |
| Karmen | P | PRO | 5.5 | 6.0 | 5.8 | 4.5 | 4.0 | 4.3 | 5.0 | 4.0 | 4.5 | 5.5 | 6.0 | 5.8 | 6.5 | 6.0 | 6.3 |
| 7-200 | P | AFM | 5.5 | 6.0 | 5.8 | 6.5 | 6.5 | 6.5 | 5.0 | 4.5 | 4.8 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| AS08003 | P | AGR | 6.0 | 6.0 | 6.0 | 4.0 | 4.0 | 4.0 | 4.5 | 4.0 | 4.3 | 5.5 | 6.5 | 6.0 | 6.5 | 6.5 | 6.5 |
| 7-140/21 | P | AFM | 5.0 | 6.0 | 5.5 | 5.5 | 6.5 | 6.0 | 5.0 | 5.0 | 5.0 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 |
| Red means | | | 5.5 | 6.0 | 5.8 | 5.1 | 5.3 | 5.2 | 4.9 | 4.4 | 4.6 | 6.0 | 6.4 | 6.2 | 6.5 | 6.4 | 6.4 |

Table 5. NIAB SPRING SOWN ONION TRIALS 2008 from seed - (MAIN & PRELIMINARY TRIALS)

| variety | +/- drilled | | | vigour 1-9 | | | leaf cranking | | | leaf fineness | | | habit | | | |
|--------------------|-------------|-----------|-----------|------------|----------|----------|---------------|----------|----------|---------------|----------|----------|----------|----------|----------|----------|
| | Raker | Rix | Mean | Raker | Rix | Mean | Raker | Rix | Mean | Raker | Rix | Mean | Raker | Rix | Mean | |
| main | | | | | | | | | | | | | | | | |
| Hybing | BJO | -2 | -3 | -3 | 7 | 6 | 7 | 3 | 6 | 4 | 4 | 5 | 5 | 4 | 7 | 5 |
| Hytech | BJO | -7 | -8 | -8 | 7 | 6 | 6 | 2 | 5 | 4 | 3 | 6 | 5 | 3 | 5 | 4 |
| Hypark | BJO | -5 | -12 | -9 | 7 | 6 | 6 | 3 | 7 | 5 | 4 | 6 | 5 | 3 | 7 | 5 |
| Tangito | SEM | -1 | -15 | -8 | 7 | 5 | 6 | 3 | 6 | 5 | 5 | 5 | 5 | 4 | 6 | 5 |
| Bennito | SEM | -4 | -6 | -5 | 7 | 6 | 7 | 3 | 6 | 5 | 4 | 5 | 5 | 4 | 7 | 5 |
| Premito | SEM | -4 | -6 | -5 | 7 | 6 | 6 | 4 | 7 | 5 | 4 | 5 | 5 | 4 | 7 | 6 |
| Sunnito | SEM | -13 | -18 | -16 | 6 | 5 | 6 | 4 | 7 | 6 | 5 | 5 | 5 | 5 | 6 | 6 |
| Centro | NIZ | -5 | -8 | -7 | 8 | 6 | 7 | 2 | 5 | 4 | 3 | 5 | 4 | 3 | 6 | 5 |
| Santero | NIZ | -9 | -19 | -14 | 7 | 6 | 7 | 3 | 7 | 5 | 4 | 5 | 5 | 4 | 6 | 5 |
| Wellington | SEG | 3 | -14 | -6 | 7 | 5 | 6 | 4 | 8 | 6 | 5 | 6 | 5 | 5 | 7 | 6 |
| Napoleon | SEG | 2 | -2 | 0 | 7 | 7 | 7 | 4 | 5 | 4 | 4 | 5 | 5 | 3 | 5 | 4 |
| Sunskin | SEG | 2 | -6 | -2 | 7 | 7 | 7 | 2 | 5 | 4 | 3 | 5 | 4 | 4 | 5 | 4 |
| Vision | SEG | -1 | -11 | -6 | 7 | 7 | 7 | 4 | 6 | 5 | 6 | 6 | 6 | 6 | 7 | 6 |
| Sprinter | SEG | -1 | -10 | -6 | 7 | 7 | 7 | 2 | 4 | 3 | 4 | 5 | 5 | 3 | 5 | 4 |
| Arthur | ADV | 0 | -16 | -8 | 7 | 6 | 7 | 4 | 7 | 6 | 5 | 6 | 5 | 5 | 7 | 6 |
| Arlondo | ADV | -6 | -8 | -7 | 7 | 7 | 7 | 4 | 6 | 5 | 5 | 5 | 5 | 4 | 6 | 5 |
| ADV 00335 | ADV | 3 | -9 | -3 | 7 | 7 | 7 | 4 | 7 | 5 | 5 | 5 | 5 | 4 | 6 | 5 |
| Red Baron | BJO | -3 | -7 | -5 | 7 | 6 | 6 | 5 | 7 | 6 | 5 | 5 | 5 | 4 | 7 | 6 |
| Red Spark | BJO | -3 | -5 | -4 | 7 | 7 | 7 | 3 | 5 | 4 | 4 | 6 | 5 | 4 | 7 | 6 |
| Reddawn | BJO | 1 | -3 | -1 | 8 | 8 | 8 | 1 | 2 | 2 | 2 | 4 | 3 | 1 | 4 | 3 |
| 301/5 | AFM | -6 | -13 | -10 | 7 | 6 | 7 | 6 | 8 | 7 | 6 | 6 | 6 | 6 | 7 | 7 |
| Kamal | ADV | 1 | -4 | -2 | 7 | 7 | 7 | 3 | 7 | 5 | 4 | 5 | 4 | 4 | 7 | 6 |
| preliminary | | | | | | | | | | | | | | | | |
| 55701 | SEM | 1 | -7 | -3 | 8 | 6 | 7 | 3 | 5 | 4 | 3 | 5 | 4 | 3 | 6 | 5 |
| AS08004 | AGR | -3 | -16 | -10 | 8 | 5 | 7 | 3 | 6 | 5 | 4 | 5 | 5 | 3 | 5 | 4 |
| NIZ 37-70 | NIZ | -2 | -16 | -9 | 7 | 5 | 6 | 3 | 7 | 5 | 4 | 6 | 5 | 3 | 7 | 5 |
| NIZ 37-71 | NIZ | -1 | -1 | -1 | 7 | 6 | 7 | 2 | 4 | 3 | 4 | 5 | 5 | 2 | 5 | 4 |
| ADV 36393 | ADV | 4 | -4 | 0 | 8 | 7 | 8 | 3 | 7 | 5 | 3 | 6 | 5 | 3 | 7 | 5 |
| ADV 36334 | ADV | -1 | -3 | -2 | 8 | 7 | 8 | 2 | 7 | 5 | 3 | 5 | 4 | 2 | 7 | 5 |
| ADV02459 | ADV | -3 | -14 | -9 | 8 | 6 | 7 | 2 | 7 | 5 | 3 | 4 | 4 | 2 | 6 | 4 |
| ALICE | PRO | -7 | -14 | -11 | 7 | 5 | 6 | 3 | 6 | 5 | 4 | 5 | 5 | 3 | 6 | 5 |
| 7-140/21 | AFM | -9 | -8 | -9 | 7 | 7 | 7 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 |
| 7-200 | AFM | 0 | -2 | -1 | 8 | 7 | 8 | 5 | 7 | 6 | 5 | 6 | 6 | 5 | 7 | 6 |
| AS08003 | AGR | -1 | -8 | -5 | 7 | 6 | 7 | 4 | 7 | 6 | 5 | 4 | 5 | 5 | 6 | 6 |
| Karmen | PRO | 12 | -2 | 5 | 7 | 6 | 7 | 4 | 6 | 5 | 5 | 5 | 5 | 4 | 6 | 5 |
| mean | | -2 | -9 | -5 | 7 | 6 | 7 | 3 | 6 | 5 | 4 | 5 | 5 | 4 | 6 | 5 |

Table 6. NIAB SPRING SOWN SEED ONION TRIALS 2008 - Onion Ring and Skin Strength Data

Tumbling damage using rotating barrel designed by HRI-Wellesbourne

in order of mean Index. Lower the score tougher the skin

| Variety | ESSEX % Bulbs with: | | | | | NORFOLK % Bulbs with: | | | | | | | | |
|---------------|------------------------|---------------------------|------------------|-------|--------|--------------------------|---------------------------|------------------|-------|--------|-------------------------|----------------|-----------------------|--|
| | TUMBLING DAMAGE* | | | | | TUMBLING DAMAGE* | | | | | CENTRES (above 4 rings) | | | |
| | Skinned | Cracking through to flesh | Cracking on skin | Sound | Index* | Skinned | Cracking through to flesh | Cracking on skin | Sound | Index* | Singles centres | Double centres | Three or more centres | |
| Browns | | | | | | | | | | | | | | |
| Sprinter | 0 | 8 | 72 | 20 | 168 | 0 | 4 | 76 | 20 | 164 | 70 | 27 | 3 | |
| Sunnito | 0 | 0 | 92 | 8 | 184 | 0 | 0 | 88 | 12 | 176 | 33 | 53 | 13 | |
| Tangito | 0 | 8 | 84 | 8 | 192 | 0 | 8 | 76 | 16 | 176 | 47 | 53 | 0 | |
| Arthur | 0 | 8 | 92 | 0 | 208 | 0 | 4 | 76 | 20 | 164 | 40 | 47 | 13 | |
| ADV 00335 | 0 | 8 | 88 | 4 | 200 | 0 | 4 | 80 | 16 | 172 | 53 | 47 | 0 | |
| Premito | 0 | 8 | 88 | 4 | 200 | 0 | 12 | 72 | 16 | 180 | 40 | 53 | 7 | |
| Centro | 0 | 16 | 80 | 4 | 208 | 0 | 4 | 80 | 16 | 172 | 63 | 37 | 0 | |
| Arlondo | 0 | 4 | 92 | 4 | 196 | 0 | 16 | 68 | 16 | 184 | 43 | 47 | 10 | |
| Sunskin | 0 | 8 | 92 | 0 | 208 | 0 | 8 | 76 | 16 | 176 | 53 | 43 | 3 | |
| Hypark | 0 | 8 | 84 | 8 | 192 | 4 | 8 | 80 | 16 | 200 | 53 | 47 | 0 | |
| Wellington | 0 | 8 | 88 | 4 | 200 | 0 | 0 | 96 | 4 | 192 | 67 | 30 | 3 | |
| Vision | 0 | 0 | 92 | 8 | 184 | 0 | 16 | 80 | 4 | 208 | 53 | 43 | 3 | |
| Hybing | 0 | 16 | 80 | 4 | 208 | 0 | 12 | 76 | 12 | 188 | 73 | 27 | 0 | |
| Bennito | 0 | 12 | 84 | 4 | 204 | 0 | 12 | 80 | 8 | 196 | 43 | 50 | 7 | |
| Santero | 0 | 8 | 88 | 4 | 200 | 0 | 8 | 88 | 4 | 200 | 80 | 20 | 0 | |
| Hytech | 0 | 4 | 96 | 0 | 204 | 8 | 8 | 72 | 12 | 200 | 53 | 43 | 3 | |
| Napoleon | 0 | 0 | 92 | 8 | 184 | 8 | 20 | 64 | 8 | 220 | 50 | 47 | 3 | |
| Reds | | | | | | | | | | | | | | |
| Red Spark | 8 | 20 | 68 | 4 | 228 | 8 | 16 | 68 | 8 | 216 | 43 | 53 | 3 | |
| Reddawn | 8 | 16 | 76 | 0 | 232 | 16 | 24 | 48 | 12 | 232 | 13 | 87 | 0 | |
| Red Baron | 12 | 16 | 64 | 8 | 224 | 8 | 28 | 64 | 0 | 244 | 60 | 37 | 3 | |
| Kamal | 12 | 20 | 64 | 4 | 236 | 8 | 28 | 60 | 4 | 236 | 47 | 47 | 7 | |
| 301/5 | 0 | 12 | 88 | 0 | 212 | * | * | * | * | * | 63 | 33 | 3 | |

Table 6 contd. NIAB SPRING SOWN SEED ONION TRIALS 2008 - Onion Ring and Skin Strength Data

Tumbling damage using rotating barrel designed by HRI-Wellesbourne

in order of mean Index. Lower the score tougher the skin

| Variety | ESSEX % Bulbs with: | | | | | NORFOLK % Bulbs with: | | | | | | | |
|--------------------------|------------------------|---------------------------|------------------|-------|--------|--------------------------|---------------------------|------------------|-------|--------|-------------------------|----------------|-----------------------|
| | TUMBLING DAMAGE* | | | | | TUMBLING DAMAGE* | | | | | CENTRES (above 4 rings) | | |
| | Skinned | Cracking through to flesh | Cracking on skin | Sound | Index* | Skinned | Cracking through to flesh | Cracking on skin | Sound | Index* | Singles centres | Double centres | Three or more centres |
| Preliminary trial | | | | | | | | | | 0 | | | |
| | | | | | | | | | | 0 | | | |
| ADV 36334 | 4 | 8 | 72 | 16 | 184 | 0 | 0 | 84 | 16 | 168 | 70 | 30 | 0 |
| ADV 36393 | 4 | 4 | 88 | 4 | 204 | 0 | 0 | 84 | 16 | 168 | 90 | 10 | 0 |
| 55701 | 0 | 16 | 72 | 12 | 192 | 0 | 0 | 92 | 8 | 184 | 40 | 60 | 0 |
| 7-200 | 0 | 16 | 68 | 16 | 184 | 0 | 20 | 72 | 8 | 204 | 100 | 0 | 0 |
| AS08004 | 4 | 8 | 76 | 12 | 192 | 0 | 28 | 56 | 16 | 196 | 80 | 20 | 0 |
| NIZ 37-70 | 12 | 8 | 76 | 4 | 224 | 0 | 4 | 80 | 16 | 172 | 80 | 20 | 0 |
| NIZ 37-71 | 8 | 8 | 80 | 4 | 216 | 0 | 12 | 72 | 16 | 180 | 90 | 10 | 0 |
| ADV02459 | 0 | 4 | 92 | 4 | 196 | 0 | 8 | 88 | 4 | 200 | 70 | 30 | 0 |
| ALICE | 0 | 20 | 76 | 4 | 212 | 4 | 20 | 60 | 16 | 196 | 10 | 70 | 20 |
| KARMEN | 8 | 16 | 72 | 4 | 224 | 12 | 24 | 44 | 20 | 208 | 10 | 80 | 10 |
| 7-140/21 | 12 | 16 | 72 | 0 | 240 | 0 | 16 | 80 | 4 | 208 | 100 | 0 | 0 |
| AS08003 | 12 | 28 | 56 | 4 | 244 | 12 | 28 | 48 | 12 | 228 | 50 | 50 | 0 |

Table 7. NIAB Spring Planted Onion Trial 2008 - from Sets in Lincolnshire

Varieties in maturity order (mean of both sites)

| Variety | set source | | Maturity | Population & Yield | | | Bulb Quality (1-9) | | | | | Defects % | | |
|------------------------------|------------|---------|------------------------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-------------------------------------|---|--------------------------------|------------------------------|-------------------|-------------------|--------------------------------|
| | | | Date of 80% foliage fallover | plant pop. (palnts / sq. m) | marketable yield (t/ha) | % bulbs >60mm (by weight) | 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 | Bolters | Rots | Doubles thicknecks other |
| <i>Browns</i> | | | | | | | | | | | | | | |
| ABS 101 | ABS | Holland | 28-Jun | 38.1 | 42.5 | 72.3 | 5.5 | 3.0 | 5.5 | 5.5 | 5.0 | 0.0 | 20.0 | 0.0 |
| FORUM | ELS | Broer | 27-Jun | 38.7 | 60.1 | 84.4 | 5.5 | 4.0 | 4.5 | 6.0 | 5.5 | 0.8 | 5.4 | 0.0 |
| ALPHA | ABS | Holland | 30-Jun | 37.6 | 53.5 | 80.4 | 5.0 | 3.5 | 5.0 | 5.0 | 5.0 | 1.2 | 2.7 | 0.3 |
| VCS 6003 | ESC | UK | 03-Jul | 29.3 | 24.0 | 86.2 | 5.5 | 4.0 | 4.5 | 5.0 | 5.0 | 0.0 | 51.4 | 0.0 |
| JAGRO | ELS | Broer | 11-Jul | 37.7 | 68.8 | 92.7 | 6.0 | 5.0 | 5.0 | 6.5 | 6.0 | 0.5 | 2.5 | 0.5 |
| JAGRO | ESC | UK | 13-Jul | 36.8 | 45.6 | 67.6 | 7.0 | 4.5 | 5.0 | 6.0 | 5.5 | 2.4 | 10.0 | 0.0 |
| JAGRO | ABS | France | 16-Jul | 38.5 | 67.1 | 89.6 | 6.5 | 5.0 | 5.5 | 6.0 | 6.0 | 0.8 | 2.5 | 0.0 |
| STURON | ABS | France | 20-Jul | 37.2 | 59.7 | 86.3 | 6.0 | 6.0 | 5.0 | 5.5 | 6.0 | 0.0 | 1.2 | 0.3 |
| HERCULES | ELS | Broer | 21-Jul | 33.3 | 41.2 | 74.8 | 6.5 | 6.5 | 5.5 | 5.5 | 5.5 | 0.0 | 13.9 | 0.0 |
| RUMBA | ABS | France | 20-Jul | 38.1 | 72.0 | 94.7 | 6.0 | 6.0 | 5.0 | 5.5 | 6.0 | 0.0 | 3.1 | 0.3 |
| SETTON | ABS | France | 20-Jul | 37.6 | 66.0 | 90.5 | 6.0 | 6.0 | 5.0 | 6.0 | 6.0 | 0.0 | 1.4 | 0.6 |
| STURON | ESC | UK | 25-Jul | 36.5 | 51.0 | 77.1 | 6.0 | 6.0 | 5.0 | 5.0 | 6.0 | 0.3 | 0.8 | 0.4 |
| VCS 6004 | ESC | UK | 27-Jul | 37.0 | 61.3 | 85.7 | 6.5 | 5.0 | 4.5 | 6.0 | 5.5 | 0.4 | 1.2 | 0.4 |
| VSC 6005 | ESC | UK | 24-Jul | 36.9 | 57.9 | 83.6 | 6.5 | 5.5 | 4.5 | 6.0 | 5.5 | 1.3 | 4.4 | 0.4 |
| STUR BC 20 | ELS | Broer | 24-Jul | 37.0 | 66.0 | 92.3 | 6.0 | 6.5 | 5.0 | 6.0 | 6.0 | 0.0 | 1.1 | 0.0 |
| <i>Mean of browns</i> | | | <i>14-Jul</i> | <i>36.7</i> | <i>55.8</i> | <i>83.9</i> | <i>6.0</i> | <i>5.1</i> | <i>5.0</i> | <i>5.7</i> | <i>5.6</i> | <i>0.5</i> | <i>8.1</i> | <i>0.2</i> |
| <i>Reds</i> | | | | | | | | | | | | | | |
| RED EMPEROR | ESC | UK | 16-Jul | 42.1 | 36.3 | 64.7 | 5.0 | 4.0 | 4.5 | 5.0 | 4.0 | 0.0 | 13.1 | 0.3 |
| RED EMPEROR | ABS | France | 17-Jul | 31.8 | 47.5 | 86.4 | 5.0 | 5.0 | 5.0 | 6.0 | 5.0 | 0.4 | 8.9 | 0.0 |
| REDDAWN | ELS | Broer | 19-Jul | 37.6 | 60.5 | 84.1 | 5.0 | 5.0 | 6.0 | 5.5 | 5.5 | 0.0 | 3.0 | 0.0 |
| HYRED | ELS | Broer | 28-Jul | 37.9 | 46.7 | 65.8 | 6.5 | 6.0 | 6.0 | 6.0 | 6.0 | 0.0 | 1.4 | 0.0 |
| ROMY | ESC | UK | 30-Jul | 36.4 | 42.1 | 61.3 | 6.0 | 6.0 | 5.0 | 6.0 | 6.0 | 1.7 | 1.0 | 0.0 |
| RED BARON | ELS | Broer | 31-Jul | 39.7 | 49.2 | 68.1 | 6.0 | 6.0 | 5.5 | 5.0 | 6.0 | 0.8 | 1.4 | 0.3 |
| KAMAL | ESC | UK | 07-Aug | 40.2 | 49.0 | 63.5 | 6.5 | 6.0 | 5.0 | 6.0 | 6.0 | 2.1 | 0.5 | 0.9 |
| RED BARON | ABS | France | 08-Aug | 35.8 | 49.7 | 73.9 | 6.0 | 6.0 | 5.5 | 5.0 | 6.0 | 2.4 | 0.5 | 0.3 |
| <i>Mean of reds</i> | | | <i>27-Jul</i> | <i>37.7</i> | <i>47.6</i> | <i>71.0</i> | <i>5.8</i> | <i>5.5</i> | <i>5.3</i> | <i>5.6</i> | <i>5.6</i> | <i>0.9</i> | <i>3.7</i> | <i>0.2</i> |

Table 8. NIAB Spring Planted Onion Trial 2008 - from Sets in Suffolk

Varieties in maturity order (mean of both sites)

| Variety | set source | | Maturity | Population & Yield | | | Bulb Quality (1-9) | | | | | Defects % | | |
|------------------------------|------------|---------|------------------------------|-----------------------------|-------------------------|---------------------------|---------------------------------|-------------------------------------|---|--------------------------------|------------------------------|-------------------|-------------------|--------------------------------|
| | | | Date of 80% foliage fallover | plant pop. (plants / sq. m) | marketable yield (t/ha) | % bulbs >60mm (by weight) | 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 | Bolters | Rots | Doubles thicknecks other |
| <i>Browns</i> | | | | | | | | | | | | | | |
| ABS 101 | ABS | Holland | 25-Jun | 37.7 | 34.9 | 63.2 | 5.5 | 1.0 | 6.0 | 4.5 | 5.0 | 0.0 | 20.3 | 0.7 |
| FORUM | ELS | Broer | 30-Jun | 40.1 | 54.3 | 79.9 | 5.5 | 1.0 | 4.0 | 5.5 | 5.0 | 1.4 | 16.1 | 0.0 |
| ALPHA | ABS | Holland | 02-Jul | 34.8 | 46.5 | 67.7 | 5.0 | 2.0 | 5.5 | 4.0 | 5.0 | 0.3 | 3.2 | 0.0 |
| VCS 6003 | ESC | UK | 30-Jun | 29.3 | 13.3 | 66.4 | 6.0 | 1.0 | 6.0 | 4.0 | 4.0 | 0.0 | 61.9 | 0.0 |
| JAGRO | ELS | Broer | 05-Jul | 37.2 | 65.3 | 87.1 | 6.0 | 3.0 | 5.0 | 5.0 | 6.0 | 0.0 | 1.8 | 0.7 |
| JAGRO | ESC | UK | 06-Jul | 33.9 | 62.0 | 90.0 | 6.5 | 3.0 | 5.0 | 5.0 | 6.0 | 1.6 | 4.1 | 0.0 |
| JAGRO | ABS | France | 16-Jul | 35.9 | 79.3 | 95.4 | 6.0 | 3.5 | 5.0 | 5.5 | 6.0 | 0.0 | 4.4 | 0.0 |
| STURON | ABS | France | 21-Jul | 36.4 | 68.5 | 92.1 | 6.0 | 6.0 | 5.0 | 6.0 | 6.0 | 0.0 | 1.9 | 0.0 |
| HERCULES | ELS | Broer | 21-Jul | 35.1 | 54.1 | 87.9 | 6.0 | 6.5 | 5.0 | 6.5 | 6.0 | 0.0 | 11.4 | 0.3 |
| RUMBA | ABS | France | 22-Jul | 37.4 | 73.0 | 94.1 | 6.0 | 6.5 | 5.0 | 6.0 | 6.0 | 0.0 | 0.7 | 0.0 |
| SETTON | ABS | France | 22-Jul | 35.0 | 63.0 | 92.6 | 6.0 | 6.0 | 4.5 | 5.0 | 6.0 | 0.0 | 2.9 | 0.6 |
| STURON | ESC | UK | 24-Jul | 37.1 | 65.3 | 88.9 | 6.0 | 5.5 | 5.0 | 5.0 | 6.0 | 0.0 | 0.3 | 0.0 |
| VCS 6004 | ESC | UK | 26-Jul | 36.9 | 61.3 | 85.0 | 6.0 | 4.0 | 4.5 | 6.0 | 5.0 | 0.0 | 2.8 | 0.3 |
| VSC 6005 | ESC | UK | 29-Jul | 38.0 | 63.3 | 87.1 | 6.0 | 4.5 | 4.5 | 6.0 | 5.0 | 1.4 | 1.4 | 0.3 |
| STUR BC 20 | ELS | Broer | 30-Jul | 35.9 | 65.2 | 90.6 | 5.5 | 6.0 | 5.0 | 5.5 | 6.0 | 0.0 | 1.9 | 0.3 |
| <i>Mean of browns</i> | | | <i>14-Jul</i> | <i>36.0</i> | <i>57.9</i> | <i>84.5</i> | <i>5.9</i> | <i>4.0</i> | <i>5.0</i> | <i>5.3</i> | <i>5.5</i> | <i>0.3</i> | <i>9.0</i> | <i>0.2</i> |
| <i>Reds</i> | | | | | | | | | | | | | | |
| RED EMPEROR | ESC | UK | 04-Jul | 39.0 | 42.4 | 66.7 | 5.5 | 4.0 | 4.5 | 4.5 | 4.0 | 1.5 | 17.4 | 0.0 |
| RED EMPEROR | ABS | France | 15-Jul | 30.6 | 52.5 | 90.5 | 5.0 | 5.0 | 4.5 | 5.0 | 4.0 | 0.3 | 12.9 | 0.0 |
| REDDAWN | ELS | Broer | 19-Jul | 35.0 | 53.5 | 88.5 | 5.5 | 5.0 | 5.5 | 6.0 | 4.5 | 0.0 | 13.9 | 0.0 |
| HYRED | ELS | Broer | 05-Aug | 35.5 | 50.4 | 77.8 | 6.0 | 6.0 | 5.5 | 6.5 | 6.0 | 0.0 | 1.2 | 0.0 |
| ROMY | ESC | UK | 05-Aug | 33.9 | 48.5 | 77.0 | 7.0 | 6.0 | 5.0 | 6.0 | 5.0 | 1.0 | 1.2 | 0.0 |
| RED BARON | ELS | Broer | 06-Aug | 37.5 | 53.0 | 84.4 | 6.0 | 6.0 | 5.0 | 5.5 | 5.0 | 0.3 | 6.5 | 0.0 |
| KAMAL | ESC | UK | 05-Aug | 40.3 | 49.3 | 70.6 | 6.0 | 6.0 | 5.0 | 6.0 | 5.0 | 0.0 | 5.4 | 1.3 |
| RED BARON | ABS | France | 07-Aug | 33.8 | 62.4 | 88.4 | 6.0 | 6.0 | 5.0 | 5.5 | 5.0 | 2.0 | 2.0 | 0.0 |
| <i>Mean of reds</i> | | | <i>27-Jul</i> | <i>35.7</i> | <i>51.5</i> | <i>80.5</i> | <i>5.9</i> | <i>5.5</i> | <i>5.0</i> | <i>5.6</i> | <i>4.8</i> | <i>0.6</i> | <i>7.6</i> | <i>0.2</i> |

Table 9. NIAB SPRING SOWN SET ONION TRIALS 2008 - Onion Ring Data

* = not enough sound bulbs to assess.

| Variety | set source | SUFFOLK CENTRES | | | LINCS CENTRES | | | MEAN OF BOTH SITES CENTRES | | |
|--------------------|------------|-----------------|----------------|-----------------------|-----------------|----------------|-----------------------|----------------------------|----------------|-----------------------|
| | | Singles centres | Double centres | Three or more centres | Singles centres | Double centres | Three or more centres | Singles centres | Double centres | Three or more centres |
| Browns | | | | | | | | | | |
| Jagro | Broer/ELS | 20 | 80 | 0 | 0 | 100 | 0 | 10 | 90 | 0 |
| Forum | Broer/ELS | 50 | 50 | 0 | 25 | 70 | 5 | 38 | 60 | 3 |
| Hercules | Broer/ELS | 40 | 55 | 5 | 100 | 0 | 0 | 70 | 28 | 3 |
| Stur BC 20 | Broer/ELS | 20 | 80 | 0 | 50 | 50 | 0 | 35 | 65 | 0 |
| Alpha | ABS | 35 | 60 | 5 | 35 | 60 | 5 | 35 | 60 | 5 |
| ABS101 | ABS | 85 | 15 | 0 | 95 | 5 | 0 | 90 | 10 | 0 |
| Jagro | ABS | 0 | 70 | 30 | 0 | 90 | 10 | 0 | 80 | 20 |
| Rumba | ABS | 30 | 65 | 5 | 50 | 50 | 0 | 40 | 58 | 3 |
| Sturon | ABS | 25 | 75 | 0 | 40 | 60 | 0 | 33 | 68 | 0 |
| Setton | ABS | 10 | 75 | 15 | 35 | 60 | 5 | 23 | 68 | 10 |
| VCS6003 | ESC | * | * | * | * | * | * | * | * | * |
| VCS6004 | ESC | 30 | 70 | 0 | 20 | 80 | 0 | 25 | 75 | 0 |
| VCS6005 | ESC | 30 | 60 | 10 | 25 | 70 | 5 | 28 | 65 | 8 |
| Sturon | ESC | 25 | 75 | 0 | 30 | 70 | 0 | 28 | 73 | 0 |
| Jagro | ESC | 10 | 90 | 0 | 20 | 80 | 0 | 15 | 85 | 0 |
| <i>mean browns</i> | | 29 | 66 | 5 | 38 | 60 | 2 | 33 | 63 | 4 |
| Reds | | | | | | | | | | |
| Red Baron | Broer/ELS | 75 | 25 | 0 | 80 | 15 | 5 | 78 | 20 | 3 |
| Hyred | Broer/ELS | 75 | 25 | 0 | 100 | 0 | 0 | 88 | 13 | 0 |
| Red Dawn | Broer/ELS | 30 | 60 | 10 | 20 | 80 | 0 | 25 | 70 | 5 |
| Red Emperor | ABS | 50 | 45 | 5 | 95 | 5 | 0 | 73 | 25 | 3 |
| Red Baron | ABS | 55 | 40 | 5 | 95 | 5 | 0 | 75 | 23 | 3 |
| Kamal | ESC | 85 | 15 | 0 | 100 | 0 | 0 | 93 | 8 | 0 |
| Red Emperor | ESC | 95 | 5 | 0 | * | * | * | * | * | * |
| Romy | ESC | 85 | 15 | 0 | 95 | 5 | 0 | 90 | 10 | 0 |
| <i>mean reds</i> | | 69 | 29 | 3 | 84 | 16 | 1 | 76 | 22 | 2 |

Table 10. NIAB Bulb Seeded Onion Storage Assessments 2008/2009

Spring seeded at Rix, Essex - Main Trials

In order of most sound in April

| Varieties | | Assessment One (%) | | | | | | | | Assessment Two (%) | | | | | | | | |
|--|-----|--------------------|------------|----------|----------|------------|-----------|--------------|-----------|--------------------|------------|----------|------------|-----------|--------------|-----------|--|-------|
| | | Status | 18th March | | | | | | | Sound | 21st April | | | | | | | Sound |
| | | | Sprouted | Neck Rot | Soft rot | Penecillin | Bacterial | Watery Scale | Sprouted | | Neck Rot | Soft rot | Penecillin | Bacterial | Watery Scale | | | |
| <u>Main trial Brown</u> | | | | | | | | | | | | | | | | | | |
| Vision | SEG | 2 | 3 | 1 | 3 | 0 | 3 | 1 | 89 | 24 | 1 | 3 | 0 | 5 | 1 | 67 | | |
| Wellington | SEG | C | 4 | 1 | 0 | 3 | 3 | 2 | 88 | 32 | 1 | 1 | 3 | 3 | 2 | 58 | | |
| Santero | NIZ | 2 | 3 | 1 | 3 | 0 | 2 | 2 | 89 | 35 | 1 | 3 | 0 | 4 | 2 | 55 | | |
| Sprinter | SEG | C | 1 | 0 | 0 | 1 | 1 | 1 | 95 | 42 | 1 | 1 | 1 | 1 | 1 | 54 | | |
| Sunskin | SEG | R | 2 | 0 | 0 | 0 | 2 | 0 | 95 | 51 | 0 | 0 | 1 | 4 | 0 | 44 | | |
| Hytech | BJO | C | 6 | 0 | 0 | 1 | 0 | 1 | 91 | 54 | 0 | 0 | 1 | 1 | 1 | 43 | | |
| Arlondo | ADV | 4 | 6 | 0 | 0 | 1 | 0 | 1 | 92 | 59 | 0 | 1 | 1 | 0 | 1 | 38 | | |
| Napoleon | SEG | R | 3 | 0 | 1 | 1 | 3 | 0 | 93 | 58 | 0 | 1 | 1 | 3 | 0 | 38 | | |
| Hypark | BJO | 2 | 4 | 1 | 1 | 1 | 2 | 0 | 92 | 62 | 1 | 1 | 1 | 2 | 0 | 33 | | |
| Arthur | ADV | C | 12 | 1 | 2 | 1 | 1 | 1 | 82 | 62 | 1 | 2 | 1 | 1 | 1 | 32 | | |
| Centro | NIZ | 3 | 9 | 1 | 1 | 1 | 4 | 1 | 82 | 60 | 1 | 2 | 1 | 4 | 1 | 31 | | |
| Premito | SEM | 2 | 7 | 0 | 1 | 0 | 2 | 3 | 87 | 63 | 0 | 1 | 0 | 2 | 3 | 31 | | |
| Bennito | SEM | R | 5 | 0 | 1 | 0 | 2 | 2 | 89 | 63 | 0 | 2 | 0 | 2 | 2 | 30 | | |
| Sunnito | SEM | 2 | 7 | 1 | 1 | 0 | 2 | 0 | 90 | 70 | 1 | 1 | 0 | 2 | 0 | 26 | | |
| ADV 00335 | ADV | 4 | 10 | 0 | 1 | 0 | 3 | 0 | 87 | 72 | 0 | 1 | 0 | 3 | 0 | 25 | | |
| Hybing | BJO | C | 8 | 0 | 1 | 1 | 4 | 0 | 85 | 70 | 0 | 1 | 1 | 4 | 0 | 24 | | |
| Tangito | SEM | R | 12 | 0 | 3 | 1 | 1 | 2 | 82 | 74 | 0 | 3 | 1 | 2 | 2 | 18 | | |
| <u>Main trial Red Varieties</u> | | | | | | | | | | | | | | | | | | |
| Red Spark | BJO | R | 4 | 0 | 0 | 0 | 25 | 1 | 71 | 34 | 1 | 3 | 0 | 26 | 1 | 36 | | |
| 301/5 | AFM | 2 | 16 | 0 | 1 | 3 | 3 | 2 | 75 | 60 | 0 | 1 | 3 | 4 | 2 | 30 | | |
| Red Baron | BJO | C | 10 | 0 | 0 | 1 | 12 | 2 | 76 | 58 | 0 | 1 | 1 | 12 | 2 | 28 | | |
| Reddawn | BJO | 2 | 28 | 1 | 1 | 2 | 15 | 2 | 51 | 66 | 1 | 2 | 2 | 18 | 2 | 9 | | |
| Kamal | ADV | 4 | 15 | 0 | 0 | 1 | 27 | 1 | 56 | 70 | 0 | 0 | 1 | 27 | 1 | 1 | | |

Table 10 contd. NIAB Bulb Seeded Onion Storage Assessments 2008/2009

Spring seeded at Rix, Essex - Preliminary Trials

In order of most sound in April

| Varieties | | Assessment One (%) | | | | | | | | Assessment Two (%) | | | | | | | |
|------------------------------|-----|--------------------|------------|----------|----------|------------|-----------|--------------|-----------|--------------------|------------|----------|------------|-----------|--------------|-----------|--|
| | | Status | 18th March | | | | | | | Sound | 21st April | | | | | | |
| | | | Sprouted | Neck Rot | Soft rot | Penicillin | Bacterial | Watery Scale | Sprouted | | Neck Rot | Soft rot | Penicillin | Bacterial | Watery Scale | Sound | |
| Preliminary trial | | | | | | | | | | | | | | | | | |
| ADV02459 | ADV | P | 6 | 0 | 3 | 1 | 4 | 0 | 86 | 56 | 0 | 3 | 1 | 4 | 0 | 36 | |
| NIZ 37-71 | NIZ | P | 9 | 2 | 3 | 2 | 0 | 0 | 85 | 65 | 2 | 3 | 2 | 0 | 0 | 28 | |
| AS08004 | AGR | P | 10 | 0 | 0 | 2 | 0 | 2 | 86 | 73 | 0 | 0 | 3 | 0 | 2 | 22 | |
| ADV 36393 | ADV | P | 6 | 0 | 0 | 0 | 0 | 3 | 91 | 74 | 1 | 0 | 0 | 0 | 3 | 22 | |
| 55701 | SEM | P | 10 | 0 | 0 | 0 | 0 | 0 | 90 | 80 | 0 | 1 | 1 | 0 | 0 | 18 | |
| Alice | PRO | P | 35 | 0 | 0 | 2 | 2 | 4 | 57 | 78 | 0 | 0 | 2 | 2 | 4 | 14 | |
| ADV 36334 | ADV | P | 10 | 0 | 6 | 0 | 9 | 0 | 75 | 71 | 0 | 6 | 0 | 10 | 0 | 13 | |
| NIZ 37-70 | NIZ | P | 13 | 0 | 3 | 1 | 0 | 4 | 79 | 87 | 0 | 3 | 1 | 0 | 4 | 5 | |
| Preliminary trial Red | | | | | | | | | | | | | | | | | |
| 7-140/21 | AFM | P | 12 | 0 | 0 | 1 | 16 | 0 | 71 | 49 | 0 | 0 | 1 | 16 | 0 | 34 | |
| 7-200 | AFM | P | 15 | 0 | 1 | 0 | 5 | 0 | 79 | 70 | 0 | 1 | 0 | 6 | 0 | 23 | |
| Karmen | PRO | P | 31 | 0 | 0 | 0 | 3 | 4 | 62 | 80 | 0 | 0 | 1 | 3 | 4 | 13 | |
| AS08003 | AGR | P | 57 | 0 | 0 | 3 | 0 | 0 | 40 | 94 | 0 | 0 | 3 | 0 | 0 | 3 | |

Table 11. NIAB Bulb Seeded Onion Storage Assessments 2008/2009

Spring seeded at Rakers Norfolk - Main Trials

In order of most sound in April

| | | Assessment One (%) | | | | | | | | Assessment Two (%) | | | | | | |
|---------------------------------|-----|--------------------|----------|----------|----------|------------|-----------|--------------|-----------|--------------------|----------|----------|------------|-----------|--------------|-----------|
| | | 18th March | | | | | | | | 21st April | | | | | | |
| Varieties | | Status | Sprouted | Neck Rot | Soft rot | Penecillin | Bacterial | Watery Scale | Sound | Sprouted | Neck Rot | Soft rot | Penecillin | Bacterial | Watery Scale | Sound |
| Main trial Brown | | | | | | | | | | | | | | | | |
| Vision | SEG | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 96 | 57 | 1 | 0 | 0 | 1 | 1 | 39 |
| Wellington | SEG | C | 0 | 1 | 0 | 0 | 1 | 0 | 97 | 75 | 1 | 0 | 0 | 1 | 0 | 23 |
| Sunskin | SEG | R | 5 | 2 | 0 | 0 | 1 | 0 | 92 | 76 | 2 | 0 | 0 | 2 | 0 | 20 |
| Hytech | BJO | C | 2 | 0 | 0 | 0 | 0 | 1 | 97 | 82 | 0 | 0 | 0 | 1 | 1 | 17 |
| Hypark | BJO | 2 | 5 | 2 | 0 | 0 | 0 | 1 | 93 | 80 | 2 | 0 | 0 | 1 | 1 | 17 |
| Sprinter | SEG | C | 3 | 1 | 0 | 0 | 1 | 0 | 94 | 80 | 1 | 0 | 0 | 2 | 0 | 16 |
| Arlondo | ADV | 4 | 7 | 0 | 0 | 0 | 0 | 2 | 90 | 83 | 0 | 0 | 0 | 0 | 2 | 14 |
| Premito | SEM | 2 | 3 | 2 | 0 | 0 | 1 | 1 | 92 | 80 | 2 | 0 | 1 | 1 | 2 | 14 |
| Santero | NIZ | 2 | 4 | 1 | 0 | 0 | 0 | 2 | 94 | 85 | 1 | 0 | 1 | 0 | 2 | 12 |
| Centro | NIZ | 3 | 10 | 0 | 0 | 0 | 1 | 2 | 87 | 87 | 0 | 0 | 0 | 1 | 2 | 10 |
| Napoleon | SEG | R | 8 | 0 | 0 | 0 | 0 | 0 | 91 | 89 | 0 | 0 | 0 | 1 | 0 | 9 |
| Arthur | ADV | C | 12 | 2 | 0 | 0 | 1 | 1 | 84 | 87 | 2 | 0 | 0 | 1 | 1 | 9 |
| Hybing | BJO | C | 13 | 0 | 0 | 0 | 0 | 1 | 85 | 91 | 0 | 0 | 0 | 0 | 1 | 7 |
| Sunnito | SEM | 2 | 12 | 2 | 0 | 0 | 0 | 2 | 84 | 89 | 2 | 0 | 0 | 0 | 2 | 7 |
| Bennito | SEM | R | 7 | 1 | 0 | 0 | 0 | 0 | 91 | 91 | 1 | 0 | 0 | 1 | 0 | 6 |
| ADV 00335 | ADV | 4 | 10 | 0 | 0 | 0 | 0 | 2 | 88 | 92 | 0 | 0 | 0 | 1 | 2 | 5 |
| Tangito | SEM | R | 13 | 1 | 0 | 0 | 1 | 1 | 83 | 92 | 2 | 0 | 0 | 1 | 1 | 4 |
| Main trial Red Varieties | | | | | | | | | | | | | | | | |
| Red Spark | BJO | R | 1 | 1 | 0 | 2 | 1 | 2 | 94 | 75 | 1 | 0 | 2 | 1 | 2 | 20 |
| Kamal | ADV | 4 | 5 | 0 | 0 | 2 | 1 | 0 | 92 | 79 | 0 | 0 | 2 | 1 | 0 | 18 |
| Red Baron | BJO | C | 5 | 1 | 1 | 1 | 2 | 3 | 88 | 83 | 1 | 1 | 1 | 2 | 3 | 9 |
| 301/5 | AFM | 2 | 5 | 8 | 3 | 7 | 6 | 4 | 67 | 64 | 9 | 3 | 7 | 6 | 4 | 7 |
| Reddawn | BJO | 2 | 14 | 0 | 3 | 5 | 9 | 21 | 48 | 55 | 0 | 3 | 5 | 10 | 21 | 6 |

Table 11 contd. NIAB Bulb Seeded Onion Storage Assessments 2008/2009

Spring seeded at Rakers Norfolk - Preliminary Trials

In order of most sound in April

| Varieties | | Assessment One (%) | | | | | | | | Assessment Two (%) | | | | | | |
|--------------------------------|-----|--------------------|------------|----------|----------|------------|-----------|--------------|-----------|--------------------|----------|----------|------------|-----------|--------------|-----------|
| | | Status | 18th March | | | | | | | 21st April | | | | | | |
| | | | Sprouted | Neck Rot | Soft rot | Penicillin | Bacterial | Watery Scale | Sound | Sprouted | Neck Rot | Soft rot | Penicillin | Bacterial | Watery Scale | Sound |
| Preliminary trial Brown | | | | | | | | | | | | | | | | |
| AS08004 | AGR | P | 12 | 1 | 3 | 1 | 0 | 2 | 81 | 78 | 1 | 3 | 1 | 0 | 2 | 15 |
| NIZ 37-71 | NIZ | P | 6 | 3 | 0 | 0 | 0 | 1 | 90 | 83 | 3 | 0 | 0 | 1 | 1 | 12 |
| ADV 36393 | ADV | P | 4 | 0 | 0 | 0 | 1 | 0 | 95 | 90 | 0 | 0 | 0 | 1 | 0 | 9 |
| ADV 36334 | ADV | P | 3 | 0 | 0 | 0 | 1 | 0 | 96 | 91 | 0 | 0 | 0 | 1 | 0 | 8 |
| NIZ 37-70 | NIZ | P | 12 | 1 | 0 | 0 | 0 | 0 | 87 | 92 | 1 | 0 | 0 | 0 | 0 | 7 |
| ADV02459 | ADV | P | 2 | 0 | 0 | 0 | 1 | 0 | 97 | 92 | 0 | 0 | 0 | 1 | 0 | 7 |
| 55701 | SEM | P | 8 | 0 | 0 | 1 | 0 | 3 | 88 | 91 | 0 | 0 | 1 | 0 | 3 | 5 |
| Alice | PRO | P | 25 | 0 | 0 | 3 | 0 | 1 | 71 | 91 | 0 | 0 | 3 | 0 | 1 | 5 |
| Preliminary trial Red | | | | | | | | | | | | | | | | |
| 7-140/21 | AFM | P | 6 | 6 | 0 | 4 | 12 | 1 | 71 | 55 | 10 | 0 | 4 | 13 | 1 | 17 |
| 7-200 | AFM | P | 2 | 0 | 0 | 2 | 6 | 0 | 90 | 83 | 0 | 0 | 2 | 6 | 0 | 9 |
| Karmen | PRO | P | 26 | 0 | 0 | 6 | 2 | 5 | 61 | 81 | 0 | 0 | 7 | 2 | 5 | 5 |
| AS08003 | AGR | P | 69 | 0 | 0 | 7 | 1 | 5 | 18 | 87 | 0 | 0 | 7 | 1 | 5 | 0 |

Table 12. Commercial Cold Storage (-0.05C, 80-85% RH)

in order of % sound after 3 weeks.

* sprouting index = incidence x severity. The higher the score the greater the sprouting

| Assessed 24th June Variety | 24-Jun | | | | | | 30-Jun | % internal growing point (%) | | | | sprouting index** | % Sound (total) | bulb softness 1-9 1=v.soft |
|-----------------------------------|----------|------------|------------------|-----------------|--------------|---------|------------|------------------------------|-------|-------|--------|-------------------|-----------------|-------------------------------|
| | sprouted | % Neck rot | % Basal soft rot | % bacterial rot | total % rots | % sound | % Sprouted | 0-25 | 26-50 | 51-75 | 75-100 | | | |
| Brown varieties | - | - | - | - | - | - | | | | | | | | |
| VISION | 0 | 3 | 0 | 1 | 4 | 96 | 2 | 0 | 0 | 5 | 9 | 37 | 80 | 7 |
| WELLINGTON | 0 | 0 | 2 | 1 | 3 | 97 | 5 | 0 | 0 | 3 | 17 | 58 | 72 | 6 |
| SUNSKIN | 0 | 1 | 1 | 2 | 4 | 96 | 7 | 0 | 0 | 0 | 20 | 61 | 68 | 7 |
| SPRINTER | 0 | 0 | 3 | 4 | 7 | 93 | 6 | 0 | 0 | 2 | 18 | 58 | 67 | 5 |
| ARTHUR | 0 | 0 | 7 | 3 | 11 | 89 | 6 | 0 | 0 | 2 | 18 | 58 | 67 | 5 |
| NAPOLEON | 0 | 0 | 1 | 2 | 3 | 97 | 9 | 0 | 0 | 0 | 22 | 65 | 67 | 6 |
| ARLONDO | 0 | 0 | 4 | 6 | 10 | 90 | 15 | 0 | 0 | 2 | 18 | 57 | 56 | 6 |
| HYTECH | 0 | 0 | 5 | 12 | 16 | 84 | 16 | 0 | 0 | 0 | 18 | 55 | 49 | 6 |
| HYPARK | 0 | 1 | 2 | 1 | 4 | 96 | 28 | 0 | 0 | 1 | 19 | 58 | 49 | 6 |
| SANTERO | 0 | 7 | 2 | 10 | 19 | 81 | 13 | 0 | 0 | 0 | 20 | 60 | 48 | 7 |
| CENTRO | 0 | 5 | 3 | 1 | 9 | 91 | 24 | 0 | 0 | 1 | 19 | 58 | 48 | 7 |
| SUNNITO | 0 | 0 | 3 | 5 | 8 | 92 | 28 | 0 | 0 | 2 | 18 | 57 | 45 | 5 |
| ADV 00335 | 1 | 5 | 6 | 3 | 14 | 85 | 25 | 0 | 0 | 0 | 20 | 60 | 40 | 6 |
| HYBING | 1 | 1 | 3 | 3 | 7 | 92 | 44 | 0 | 0 | 2 | 18 | 57 | 29 | 4 |
| TANGITO | 0 | 1 | 2 | 4 | 7 | 93 | 45 | 0 | 0 | 1 | 19 | 59 | 28 | 4 |
| BENNITO | 0 | 1 | 3 | 0 | 4 | 96 | 45 | 0 | 0 | 1 | 19 | 59 | 28 | 4 |
| PREMITO | 0 | 2 | 8 | 3 | 13 | 87 | 49 | 0 | 0 | 0 | 20 | 59 | 19 | 4 |
| Red varieties | | | | | | | | | | | | | | |
| RED SPARK | 0 | 2 | 4 | 16 | 22 | 78 | 10 | 0 | 0 | 2 | 18 | 57 | 49 | 4 |
| RED BARON | 0 | 1 | 6 | 4 | 11 | 89 | 26 | 0 | 0 | 2 | 18 | 57 | 44 | 4 |
| 301/5 | 0 | 2 | 0 | 1 | 3 | 97 | 58 | 0 | 0 | 1 | 19 | 60 | 19 | 5 |
| KAMAL | 1 | 2 | 15 | 8 | 25 | 75 | 38 | 0 | 0 | 0 | 20 | 59 | 17 | 4 |
| REDDAWN | 0 | 1 | 11 | 2 | 15 | 85 | 48 | 0 | 0 | 2 | 20 | 65 | 15 | 4 |

Table 12 contd. Commercial Cold Storage (-0.05C, 80-85% RH)

in order of % sound after 3 weeks.

* sprouting index = incidence x severity. The higher the score the greater the sprouting

| Assessed 24th June Variety | 24-Jun | | | | | | 30-Jun | % internal growing point (%) | | | | sprouting index** | % Sound (total) | bulb softness 1-9 1=v.soft |
|-----------------------------------|----------|------------|------------------|-----------------|--------------|---------|------------|------------------------------|-------|-------|--------|-------------------|-----------------|-------------------------------|
| | sprouted | % Neck rot | % Basal soft rot | % bacterial rot | total % rots | % sound | % Sprouted | 0-25 | 26-50 | 51-75 | 75-100 | | | |
| Preliminary varieties | | | | | | | | | | | | | | |
| ADV 36393 | 0 | 0 | 6 | 0 | 6 | 94 | 12 | 0 | 0 | 0 | 20 | 59 | 63 | 5 |
| NIZ 37-71 | 0 | 4 | 0 | 2 | 6 | 94 | 14 | 0 | 0 | 0 | 20 | 60 | 60 | 5 |
| ADV02459 | 0 | 4 | 8 | 2 | 14 | 86 | 8 | 0 | 2 | 18 | 0 | 38 | 58 | 6 |
| 55701 | 0 | 0 | 8 | 0 | 8 | 92 | 16 | 0 | 2 | 0 | 18 | 55 | 57 | 4 |
| ADV 36334 | 0 | 2 | 8 | 2 | 12 | 88 | 13 | 0 | 0 | 0 | 19 | 58 | 56 | 6 |
| AS08004 | 0 | 4 | 14 | 0 | 18 | 82 | 8 | 0 | 0 | 0 | 20 | 61 | 53 | 5 |
| ALICE | 2 | 4 | 8 | 4 | 17 | 81 | 29 | 0 | 0 | 0 | 21 | 63 | 31 | 3 |
| NIZ 37-70 | 0 | 2 | 6 | 0 | 8 | 92 | 40 | 0 | 0 | 0 | 21 | 63 | 31 | 4 |
| Preliminary reds | | | | | | | | | | | | | | |
| KARMEN | 0 | 2 | 6 | 0 | 7 | 93 | 19 | 0 | 0 | 0 | 19 | 56 | 56 | 2 |
| 7-200 | 0 | 0 | 0 | 0 | 0 | 100 | 30 | 0 | 2 | 2 | 16 | 54 | 50 | 5 |
| AS08003 | 2 | 0 | 8 | 0 | 8 | 90 | 22 | 0 | 0 | 0 | 20 | 61 | 47 | 2 |
| 7-140/21 | 0 | 2 | 8 | 0 | 10 | 90 | 48 | 0 | 0 | 0 | 19 | 58 | 23 | 3 |

Table 13. NIAB SET ONION STORAGE RESULTS 2008/2009 - Lincolnshire

in order of % sound in March

| Variety | Set source | Set origin | January | | March | | % | | | | | | skin (1-9) 1=poor |
|------------------------|------------|------------|---------|----------------|---------|----------------|----------|----------|----------|------------|-----------|--------------|----------------------|
| | | | % sound | % unmarketable | % sound | % unmarketable | sprouted | neck rot | base rot | penicillin | bacterial | watery scale | |
| Brown varieties | | | | | | | | | | | | | |
| Setton | ABS | France | 89 | 11 | 72 | 28 | 15 | 2 | 3 | 6 | 1 | 1 | 5.5 |
| Sturon | ESC | UK | 86 | 14 | 66 | 34 | 22 | 0 | 1 | 10 | 2 | 0 | 5.5 |
| Sturon | ABS | France | 87 | 13 | 65 | 35 | 19 | 1 | 0 | 13 | 2 | 0 | 6.0 |
| VCS6005 | ESC | UK | 70 | 31 | 56 | 45 | 16 | 1 | 1 | 20 | 4 | 3 | 4.5 |
| VCS6004 | ESC | UK | 82 | 18 | 54 | 47 | 28 | 1 | 3 | 9 | 4 | 3 | 5.0 |
| Rumba | ABS | France | 65 | 35 | 50 | 50 | 17 | 3 | 1 | 14 | 12 | 2 | 6.0 |
| Stur BC 20 | Broer/ELS | Holland | 90 | 11 | 48 | 52 | 43 | 3 | 0 | 5 | 1 | 1 | 5.5 |
| Alpha | ABS | Holland | 59 | 41 | 39 | 61 | 16 | 0 | 1 | 38 | 5 | 1 | 4.5 |
| Hercules | Broer/ELS | Holland | 37 | 75 | 28 | 72 | 6 | 1 | 8 | 15 | 39 | 4 | 5.0 |
| Jagro | Broer/ELS | Holland | 60 | 40 | 11 | 89 | 62 | 0 | 2 | 14 | 7 | 5 | 3.5 |
| ABS101 | ABS | Holland | 28 | 72 | 6 | 94 | 48 | 0 | 1 | 44 | 0 | 1 | 3.5 |
| VCS6003 | ESC | UK | 23 | 77 | 5 | 95 | 30 | 0 | 2 | 62 | 2 | 0 | 4.5 |
| Jagro | ABS | France | 47 | 53 | 5 | 95 | 77 | 0 | 1 | 11 | 5 | 2 | 4.5 |
| Forum | Broer/ELS | Holland | 28 | 72 | 4 | 96 | 56 | 0 | 2 | 32 | 6 | 0 | 3.5 |
| Jagro | ESC | UK | 17 | 83 | 1 | 99 | 70 | 0 | 2 | 20 | 7 | 2 | 4.0 |
| Red varieties | | | | | | | | | | | | | |
| Hyred | Broer/ELS | Holland | 91 | 9 | 85 | 15 | 4 | 1 | 1 | 5 | 4 | 2 | 6.0 |
| Red Baron | ABS | France | 92 | 8 | 69 | 31 | 18 | 3 | 0 | 3 | 3 | 4 | 6.0 |
| Kamal | ESC | UK | 86 | 14 | 64 | 36 | 17 | 6 | 0 | 8 | 4 | 1 | 6.0 |
| Red Baron | Broer/ELS | Holland | 85 | 16 | 62 | 38 | 18 | 6 | 1 | 6 | 4 | 4 | 6.0 |
| Romy | ESC | UK | 78 | 22 | 46 | 54 | 30 | 4 | 0 | 10 | 8 | 2 | 6.0 |
| Red Dawn | Broer/ELS | Holland | 52 | 48 | 19 | 81 | 30 | 2 | 3 | 32 | 13 | 2 | 4.0 |
| Red Emperor | ESC | UK | 39 | 61 | 17 | 83 | 40 | 0 | 1 | 32 | 9 | 1 | 4.5 |
| Red Emperor | ABS | France | 46 | 54 | 11 | 89 | 42 | 0 | 0 | 35 | 11 | 2 | 5.0 |
| mean | | | 43 | 57 | 14 | 86 | 41 | 0 | 0 | 34 | 10 | 1 | 4.8 |

Table 14. NIAB SET ONION STORAGE RESULTS 2008/2009 - Suffolk

in order of % sound in March

| Variety | Set source | Set origin | January | | March | | % | | | | | | skin (1-9) 1=poor |
|-------------------------------|------------|------------|---------|----------------|---------|----------------|----------|----------|----------|------------|-----------|--------------|----------------------|
| | | | % sound | % unmarketable | % sound | % unmarketable | sprouted | neck rot | base rot | penicillin | bacterial | watery scale | |
| <u>Brown varieties</u> | | | | | | | | | | | | | |
| Sturon | ESC | UK | 74 | 26 | 11 | 89 | 61 | 1 | 0 | 24 | 2 | 1 | 4.0 |
| Setton | ABS | France | 72 | 28 | 27 | 73 | 36 | 8 | 0 | 28 | 1 | 1 | 5.5 |
| Stur BC 20 | Broer/ELS | Holland | 69 | 31 | 12 | 88 | 58 | 1 | 0 | 26 | 1 | 2 | 4.5 |
| Sturon | ABS | France | 63 | 37 | 8 | 92 | 56 | 1 | 0 | 29 | 6 | 0 | 5.0 |
| Rumba | ABS | France | 57 | 43 | 1 | 99 | 53 | 1 | 0 | 33 | 4 | 8 | 5.5 |
| Jagro | Broer/ELS | Holland | 57 | 43 | 3 | 97 | 67 | 0 | 1 | 26 | 3 | 1 | 4.0 |
| VCS6004 | ESC | UK | 51 | 49 | 11 | 89 | 40 | 0 | 0 | 45 | 3 | 2 | 3.5 |
| VCS6005 | ESC | UK | 44 | 52 | 4 | 96 | 38 | 1 | 0 | 53 | 2 | 3 | 4.0 |
| Alpha | ABS | Holland | 35 | 65 | 11 | 89 | 24 | 0 | 0 | 59 | 6 | 1 | 3.5 |
| Jagro | ABS | France | 34 | 66 | 1 | 99 | 42 | 2 | 0 | 51 | 5 | 1 | 4.5 |
| Jagro | ESC | UK | 29 | 71 | 1 | 99 | 48 | 0 | 0 | 40 | 9 | 3 | 4.5 |
| Hercules | Broer/ELS | Holland | 27 | 73 | 6 | 94 | 19 | 2 | 2 | 64 | 7 | 0 | 5.0 |
| Forum | Broer/ELS | Holland | 8 | 92 | 1 | 99 | 16 | 1 | 0 | 77 | 5 | 0 | 4.0 |
| ABS101 | ABS | Holland | 7 | 93 | 1 | 99 | 32 | 0 | 0 | 67 | 0 | 0 | 3.0 |
| VCS6003 | ESC | UK | 4 | 96 | 0 | 100 | 11 | 0 | 0 | 89 | 0 | 0 | 3.0 |
| <u>Red varieties</u> | | | | | | | | | | | | | |
| Red Baron | ABS | France | 75 | 25 | 11 | 89 | 60 | 12 | 0 | 12 | 6 | 1 | 5.5 |
| Red Baron | Broer/ELS | Holland | 59 | 41 | 2 | 98 | 53 | 20 | 1 | 14 | 10 | 0 | 5.5 |
| Romy | ESC | UK | 55 | 45 | 4 | 96 | 50 | 28 | 0 | 9 | 8 | 1 | 5.0 |
| Kamal | ESC | UK | 52 | 48 | 15 | 85 | 33 | 3 | 0 | 41 | 7 | 2 | 5.0 |
| Hyred | Broer/ELS | Holland | 43 | 57 | 4 | 96 | 34 | 9 | 0 | 50 | 2 | 2 | 5.0 |
| Red Emperor | ESC | UK | 10 | 91 | 1 | 99 | 21 | 0 | 0 | 78 | 0 | 1 | 4.0 |
| Red Emperor | ABS | France | 7 | 93 | 1 | 99 | 11 | 0 | 0 | 85 | 3 | 1 | 5.0 |
| Red Dawn | Broer/ELS | Holland | 5 | 96 | 0 | 100 | 11 | 1 | 0 | 88 | 2 | 0 | * |
| mean | | | 6 | 94 | 0 | 100 | 11 | 0 | 0 | 86 | 2 | 1 | 5.0 |

