

Grower Summary

FV 348c

Onions - Independent
assessment of field and storage
potential of varieties

Annual 2013

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Headline

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

Background

The aim of the work is to provide independent assessment of the yield, quality and storage potential of new onion varieties, propagated from both seed and sets, that meet grower requirements e.g. high yield, disease resistance, good quality and storability.

There are direct comparisons of new and established varieties.

Drilled onions account for approximately 70% of the area grown in the UK. Early maturing varieties such as Hytech, 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. Newer entries have brought new genetics - in particular varieties bringing early maturity or mildew resistance. However there are bolting risks associated with some early material.

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

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

Results of the Variety Trials

The following results/conclusions are a selection from the comprehensive Full Trial Report.

Trial site details

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

- A W Mortier Farms, nr Leiston, Suffolk - set onions
- R Oldershaw Farms, nr Weston, Lincolnshire – set onions
- J Raker Farms, Croxton, Norfolk – drilled onions
- P G Rix Farms, nr Higham, Colchester, Essex – drilled onions

Storage was at NIAB in an ambient store and at P G Rix in commercial CE store.

Trial records and data collected –set trials

Table A lists the set varieties in trials in maturity order and selected yield and storage data. *A full set of data tables is appended to the main report.*

An early set trial was planted at the Suffolk site. A warm March but cold April was the most likely cause of bolting issues later in the season. Some of the new early maturing varieties were particularly prone to bolting (details in main report). A wet summer meant that the Suffolk crop suffered from high mildew levels. The Lincs. trial also had bolting and mildew issues.

The trials were harvested on 26th July and 7th August (Suffolk) and 2nd and 16th August (Lincs.). Yields were below average in Suffolk but were average in Lincolnshire.

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 which is mildew resistance was not in trial but commercially did very well. A wet summer meant that mildew was an issue in both of the trials.

Alpha was the earliest maturing brown variety and the latest was Setton, 3 weeks later. Later maturing varieties such as Santero were not in trial. The earlier maturing varieties were 1 to 2 weeks later than expected due to the cool summer.

In the red material ESC1100 was the earliest and the rest were 1 week later. As with the browns the cool summer seems to have compressed the range of harvest maturities.

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.

The storage assessments were later than normal due to the cold winter. Some varieties performed less well than normal due to a high percentage of rots. The Sturon types all have good storage potential. Red Baron and ESC 1100 had the highest numbers of marketable bulbs of the reds, but generally the reds did not store as well as the browns. There was a difference between the two sources of Red Baron but this was due to disease pressure rather than genetic potential.

Trial records and data collected –drilled trials

Table B shows key areas of interest - selected yield storage data.

A full set of data tables is appended.

The trials were harvested on 25th Sept (Norfolk) and 9th and 13th Sept (Essex). The wet August meant that harvest was slightly delayed both in the trials and on many commercial holdings.

Discussion - Drilled trials

There is a good range of maturities allowing growers to spread their harvest period.

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

There were problems with establishment in March. Seed going into good seedbeds early in the month established and matured as expected. Later drilled material suffered from the cold and wet conditions in April with poor establishment and crops maturing several weeks later than expected.

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

Mildew was a major problem in Essex and was not fully controlled until mid-July. The mildew came in later in Norfolk and was at low enough levels to be kept under control by regular fungicide applications.

In both trials the yields were significantly below the 10 year averages due to the cool, wet season.

In the Essex trial the mildew resistant variety Santero was the highest yielding brown.

Red Baron and Red Tide were the highest yielding red varieties.

In the Norfolk trial Hytech, NIZ 37-84 and Sem 13 were the highest yielding browns.

Red Planet and 1.11 were the highest yielding red varieties.

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 not many doubles or bolters.

Motion and some of the new coded varieties had high percentages of single centres.

Storage assessments in an ambient store, were recorded in late-April and late-May 2013.

Storage potential continues to be a key factor for drilled crops. As in 2011/12, Wellington, Vision and Motion had above average percentages of sound bulbs at the late-May assessment. NIZ37-89, Santero, ONL 346 and BGS 290 also performed above average in 2012/13.

Redspark and Red Tide continued to perform well in storage as did 1.11 in the reds.

Stored bulb quality was generally very good throughout most of the varieties.

The highest percentage of sound bulbs from CE storage was in BGS 289 and Vision. Hytech, Wellington, NIZ 37-89, Santero, Motion ONL 346 and BGS290 also performed well in CE store.

Red Tide had the highest percentage of sound bulbs in the reds but the bulbs were starting to soften as were other the reds. Red Planet and Redspark had the firmest bulbs of the red varieties.

Main Conclusions

The yield data in the drilled trials is not conclusive enough to select varieties solely on this alone. There are bigger differences in the set material.

Varieties should be selected on maturity (to stagger the harvest season); storage potential (to extend the availability of UK onions); disease resistance (i.e. mildew resistance); and single centres (for onion ring production which attracts a premium).

Selected varieties have been commented on in the results section.

Table A: NIAB Spring Planted Onion Trial from Sets 2012 – Varieties, Maturities, Yield & Storage *Varieties in maturity order (mean of both sites)*

Variety	set source	Seed source	Maturity	Yield	Storage
			Date of 80% foliage fallover	marketable (t/ha)	% sound bulbs at end Mar
			Suffolk	Mean	Mean
Early Browns					
Alpha	Allium Seeds UK Ltd	Allium Seeds UK Ltd	17-Jul	60.0	n/a
Jagro (AS)	Allium Seeds UK Ltd	Bejo/De Groot en Slot	26-Jul	57.7	n/a
Jagro (ESC)	English Set Company	Bejo/De Groot en Slot	26-Jul	61.2	n/a
Means (all vars)				55.9	
Early Reds					
Red Emperor (AS)	Allium Seeds UK Ltd	Enza Zaden	28-Jul	39.2	n/a
Red Emperor (ESC)	English Set Company	Enza Zaden	31-Jul	38.3	n/a
Means				38.8	
Maincrop Browns					
VCS 6005	English Set Company	Confidential	01-Aug	55.5	52
VCS 6004	English Set Company	Confidential	02-Aug	48.5	50
Sturon (ESC)	English Set Company	Confidential	03-Aug	59.0	51
Setton	Allium Seeds UK Ltd	Allium Seeds UK Ltd	06-Aug	52.1	53
Rumba	Allium Seeds UK Ltd	Allium Seeds UK Ltd	-	76.1	59
Means				55.5	53
Maincrop Reds					
ESC 1100	English Set Company	Confidential	01-Aug	38.3	58
Kamal	English Set Company	Advanta	05-Aug	29.7	55
Red Ray F1	Broer/Elsoms	Bejo/De Groot en Slot	06-Aug	32.8	32
Red Baron (ELS)	Broer/Elsoms	Bejo/De Groot en Slot	07-Aug	34.5	27
Red Baron (ESC)	English Set Company	Bejo/De Groot en Slot	08-Aug	37.3	74
Red Light F1	Broer/Elsoms	Bejo/De Groot en Slot	-	41.3	16
Means				36.3	45

Table B: NIAB Spring Sown Onion Trials from seed 2012 – Varieties, Maturities, Yield & Storage

Sites: Rix (Essex) and Raker (Norfolk)

Varieties in maturity order (mean of both sites)

Main varieties 3 replicates; *Preliminary varieties 2 replicates of data*

Variety	Source	Maturity Date of 80% foliage fallover	Yield marketable (t/ha)	% Bulbs with single centres	Ambient Storage % sound bulbs at end May	CE storage % sound bulbs at end July
BROWNS						
Hybing	Bejo	27-Aug	59.6	50	38	49
Hybound	Bejo	28-Aug	57.3	63	58	24
Hytech	Bejo	30-Aug	64.5	44	53	53
<i>Sem 13</i>	<i>Seminis</i>	<i>02-Sep</i>	<i>63.7</i>	<i>75</i>	<i>64</i>	<i>24</i>
Silverado	Advanta	02-Sep	58.8	37	43	34
Medaillon	Syngenta	05-Sep	55.3	54	63	38
Bennito	Seminis	05-Sep	56.9	46	37	14
Paradiso	Advanta	06-Sep	61.2	36	56	23
Wellington	Syngenta	06-Sep	51.7	56	67	64
<i>BGS 289</i>	<i>Bejo</i>	<i>06-Sep</i>	<i>54.1</i>	<i>60</i>	<i>63</i>	<i>74</i>
Napoleon	Syngenta	07-Sep	53.3	51	58	23
NIZ37-84	Nickerson	07-Sep	62.3	40	44	42
<i>Sem 12</i>	<i>Seminis</i>	<i>07-Sep</i>	<i>59.1</i>	<i>77</i>	<i>56</i>	<i>30</i>
Vision	Syngenta	07-Sep	57.7	37	77	73
SVS 69497	Seminis	07-Sep	61.6	37	45	27
Sunskin	Syngenta	08-Sep	58.4	49	58	47
<i>NIZ37-89</i>	<i>Nickerson</i>	<i>08-Sep</i>	<i>57.8</i>	<i>77</i>	<i>77</i>	<i>58</i>
Santero	Nickerson	09-Sep	65.0	41	67	53
Motion	Syngenta	10-Sep	59.2	73	83	64
NIZ37-83	Nickerson	10-Sep	60.7	53	53	27
Centro	Nickerson	10-Sep	58.7	58	50	23
<i>BGS 301</i>	<i>Bejo</i>	<i>11-Sep</i>	<i>57.8</i>	<i>80</i>	<i>59</i>	<i>46</i>
<i>Sem 11</i>	<i>Seminis</i>	<i>12-Sep</i>	<i>59.3</i>	<i>55</i>	<i>47</i>	<i>11</i>
ONL346	Syngenta	13-Sep	58.3	51	82	56
<i>Sem 10</i>	<i>Seminis</i>	<i>13-Sep</i>	<i>52.5</i>	<i>53</i>	<i>54</i>	<i>9</i>
Arthur	Advanta	13-Sep	58.7	46	39	20
<i>BGS 290</i>	<i>Bejo</i>	<i>14-Sep</i>	<i>59.9</i>	<i>52</i>	<i>67</i>	<i>51</i>
Mean		06-Sep	57.7	52	56	38
REDS						
Red Planet	Allium Farms	04-Sep	44.3	60	53	42
1.11	Allium Farms	12-Sep	45.9	84	69	35
Red Tide	Bejo	14-Sep	44.3	52	73	61
Redspark	Bejo	15-Sep	42.1	63	61	36
Red Baron	Bejo	15-Sep	44.7	76	58	35
Retano	Nickerson	18-Sep	35.7	79	44	22
Mean		13-Sep	41.0	61	51	33