



Grower Summary

FV 348d

Onions - Independent assessment of field and storage potential of varieties

Annual 2018

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Further information

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

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Project title: Onions - Independent assessment of field and storage potential of varieties

Project number: FV 348d

Project leader: Bruce Napier, NIAB

Report: Annual Report

Previous report:

Key staff: Bruce Napier
Shaun Coleman

Location of project: NIAB, Cambridge
Drilled trials: Essex and Norfolk

Industry Representative: Tom Will, VCS

Date project commenced: 01 April 2015

**Date project completed
(or expected completion date):** 30 July 2018

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.

Background

The aim of the work is to provide independent assessment of the growing habits, yield, quality and storage potential of new onion varieties propagated from seed. 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 and early maturing varieties such as Hybing, Hybound, Centro and Vision are popular. New material is competing to take a share of the early maturing variety market. Early maincrop varieties hold the majority of the acreage but mid-range and late maturing varieties still hold a proportion. However, in cool seasons late maturing varieties are only likely to mature properly on fertile soils. A range of maturities plays an important part in spreading the harvest window. Red Baron still commands a large but diminishing percentage of the red area with Redspark, Red Tide and Retano gaining popularity.

Onion set crops account for the majority of the remaining 30% of the acreage grown. Overwintered onions are still grown but there are not enough varieties to warrant evaluation trials.

Results of the Variety Trials

Results – Drilled Onions

Trial records and data collected –onion trials drilled from seed

Table A shows key areas of interest – maturity, marketable yield and storage data.

A full set of data tables is appended to the full report.

Trial site details

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

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

- J Raker Farms, Croxton, Norfolk – drilled onions
- P G Rix Farms, nr Colchester, Essex – drilled onions

The trials were harvested on 6th September (Norfolk) and 13th September (Essex). The 2017 season maturities were over two weeks earlier than the 10 year average while 2016 season was only 3 days earlier than the average.

Mildew was a present in both trials but does not seem to have had a major impact on yield.

Table A. NIAB Spring Sown Onion Trials drilled from seed 2017 – Varieties, Maturities, Yield & Storage

Varieties in maturity order (mean of both sites); Main 3 replicates; *Preliminary 2 replicates of data Storage Essex site only*

Variety	Source	Maturity Date of 80% foliage fallover	Yield marketable (t/ha)	Ambient Storage % sound bulbs at end May	Cold Storage % sound bulbs at end July
BROWNS					
Drytan	Bejo/DGS	03-Aug	94.0	80	68
Hybound	Bejo/DGS	04-Aug	90.0	47	43
Fasto	Hazera	05-Aug	88.5	66	28
Hybing	Bejo/DGS	07-Aug	96.5	37	22
Hysky	Bejo/DGS	09-Aug	96.4	60	42
Hypark	Bejo/DGS	10-Aug	98.2	48	24
SV3557ND	Agility/Seminis	10-Aug	89.4	45	30
SVND 0363	Agility/Seminis	10-Aug	88.1	36	25
Centro	Hazera	11-Aug	88.3	43	26
Hytech	Bejo/DGS	11-Aug	98.8	41	45
Packito	Agility/Seminis	11-Aug	88.8	50	19
Medaillon	Syngenta	12-Aug	85.2	70	50
Vision	Syngenta	14-Aug	87.0	62	73
Bennito	Agility/Seminis	14-Aug	85.4	25	18
Hyway	Bejo/DGS	14-Aug	100.1	74	72
SVND0367	Agility/Seminis	14-Aug	88.7	67	50
Hyfive	Bejo/DGS	15-Aug	97.1	52	63
Hylander	Bejo/DGS	15-Aug	97.4	52	48
SVND7772	Agility/Seminis	15-Aug	98.3	72	47

<i>SVND7599</i>	<i>Agility/Seminis</i>	<i>16-Aug</i>	<i>98.4</i>	<i>38</i>	<i>19</i>
Chico	Hazera	17-Aug	86.0	59	51
Bossito	Agility/Seminis	18-Aug	85.0	51	39
Santero	Hazera	18-Aug	83.2	31	21
<i>Elista</i>	<i>ProVeg</i>	<i>19-Aug</i>	<i>71.6</i>	<i>47</i>	<i>36</i>
Motion	Syngenta	20-Aug	92.2	66	47
means		12-Aug	90.1	53	40
REDS					
<i>Karminka</i>	<i>ProVeg</i>	<i>30-Jul</i>	<i>64.0</i>	<i>12</i>	<i>19</i>
Red Light	Bejo/DGS	05-Aug	92.6	7	28
37-222	Hazera	07-Aug	73.6	40	12
Red Tide	Bejo/DGS	08-Aug	83.0	75	48
Retano	Hazera	09-Aug	72.2	56	50
37-111	Hazera	10-Aug	73.4	59	33
Red Herald	Allium Seeds	13-Aug	77.3	56	44
Red Baron	Allium Seeds	13-Aug	81.5	48	41
Red Baron	Bejo/DGS	15-Aug	84.6	50	31
Redspark	Bejo/DGS	15-Aug	80.8	46	28
means		09-Aug	78.3	45	34

The following varieties are of most interest to the industry. Full information on all varieties can be found in the 'Full Trial Report'.

There is a good range of maturities allowing growers to spread their harvest period. However, in cooler years, such as 2013, the opportunities to harvest later maturing varieties can run over into October which can result in bulbs being harder to dry.

For organic growers and for high disease pressure years the mildew resistant varieties offer potential – Santero was the highest yielding variety on the mildew affected Norfolk site in 2014 – both of the 2017 trials had significant levels of mildew.

Establishment was good. Seed beds at both sites had good tilth and the trial seed was drilled into moisture. The growing season started with a cool, dry spring followed by a mini heatwave in May and then a warm but wet summer. Crops matured earlier than usual.

Drytan, Hybound, Fasto and Hybing were the earliest maturing brown varieties of the drilled trials. Red Light and Karminka were the earliest of the reds.

The mean of trial yields in Norfolk was 82t/ha browns and 74t/ha reds, the mildew came in late enough not to have been a major contributing factor to the green plot yields.

The Essex trial yield means were 98t/ha browns and 83t/ha reds. Again the mildew did not severely impact upon the green plot yields.

The highest yielding brown varieties were Hyway, Hytech and Hypark. Red Light and Red Baron were the highest yielding red varieties.

There were a small percentage of bacterial rots and physical defects (splitting) in the harvested material from Essex, but very few Fusarium rots observed and this was reflected in the storage results. Fusarium remains an issue in commercial crops.

SV3557ND, Hypark and Drytan were the best of the brown varieties for having high percentages of single centres. Karminka, 37-222 and Red Tide were the best of the reds for single centres. Hybound, Hyway, Packito and Chico have had high percentages of single centres in two of the last 3 years.

Storage assessments in an ambient store were recorded in late-April and late-May 2018. Cold storage assessments were recorded in July 2018.

Storage potential continues to be a key factor for drilled crops.

Drytan, Hyway, SVND7772 and Medaillon all performed significantly above average in 2017/18. Drytan, Medaillon, Hyway, and Vision have consistently had above average percentages of sound bulbs at the late-May assessment. Red Tide and 37-111 performed well in the reds.

In cold storage the varieties Drytan, Vision, Hyway and Hyfive were the best brown varieties for storage. Red Tide and Retano were the best performing of the red varieties.

Stored bulb quality was generally very good throughout most of the brown varieties but the reds showed more softening.

Main Conclusions

Drilled Trials

Varieties need to match the grower's requirements and ideally have two or more above average characteristics e.g. for early maturity and high green plot yields, Hybound and Hypark are suitable choices; for green plot yield and post storage yields Hyway performed well –

Medaillon and Vision performed well in previous years. Fasto, Chico and SV3557ND are newer varieties to keep an eye on over the next couple of seasons.

In the drilled trials there was approx. 29t/ha between the highest and lowest yields (mean of both trials).

Drilled material showed a difference of over 70%, between the best and worst storage potential from ambient store and of approximately 60% from cold storage.

Mildew resistant varieties should require fewer and or cheaper fungicide programmes.

Action Points

- Select a range of varieties according to soil type, desired harvest period, habit vigour and disease tolerance
- Select varieties best suited to your storage facilities
- Varieties should match the market and available storage facilities – longer storing varieties give more options
- In high disease pressure years growers material with good disease resistance e.g. mildew resistance – grow a range of varieties and use local knowledge of fields that could be disease hot spots
- Seed cost is a factor in the selection of varieties