



Grower Summary

FV 202h

**Field Vegetables: An evaluation
of autumn/winter cauliflower,
spring cabbage cultivars and
other winter brassica crops**

Final Report 2019

Project title:	Field Vegetables: An evaluation of autumn/winter cauliflower, spring cabbage cultivars and other winter brassica crops	
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The results and conclusions in this report are based on an investigation conducted over a one-year period. The conditions under which the experiments were carried out and the results have been reported in detail and with accuracy. However, because of the biological nature of the work it must be borne in mind that different circumstances and conditions could produce different results. Therefore, care must be taken with interpretation of the results, especially if they are used as the basis for commercial product recommendations.

AUTHENTICATION

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

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Grower summary

Headline

The weather pattern from transplanting in July through to the end of December played a significant part in the production of Cauliflower planned to harvest from late October through to March.

Following favorable planting conditions in July there was excellent crop establishment in August and September where day temperatures were well above average but with less rainfall than normal. However rainfall in October and especially in November was well above average with 212 mm of rainfall recorded in November. This led to above average levels of *Xanthomonas* on many of the early Winter Cauliflower variety plots, affecting the older leaves but not impacting greatly on the quality of cauliflower harvested.

The introduction of new Autumn and Winter cauliflower cultivars has again increased Grade 1 marketable product. This being very important for the January and February harvesting period windows which have only a few commercially available high yielding cultivars. Some new introductions being over 10% above standard cultivars based on 25315 plants/Hectare (10249/Acre) for the Autumn cultivars and 21193 plants/Hectare (8580/Acre) for the Winter cultivars. Potential income can be increased by £95/Ha for every additional 1% Class 1 marketed. This is a real possibility with many producers now on a fixed price for their produce.

Background

Duchy College working in partnership with Seven National seed houses and local growers have carried out the evaluation of commercially available Autumn, Winter Cauliflower and Spring greens cultivars over the past 26 years.

Initially introduced into the Confidential/Screening Trials and then within the commercially available Trials each cultivar has been recorded and evaluated year on year. With the improvement in plant breeding and new cultivars being introduced these need to be assessed alongside current and established varieties, in order to compare yields and quality of produce. With the variable growing seasons which can greatly impact yields and quality, data based over a number of seasons provides growers with an informed set of figures to make commercial decisions on which cultivars to grow from one season to the next.

With improved uniformity, disease resistance, and curd protection the need to compare with current cultivars is even more important in order to plan the production of the crop to meet changing market requirements and provide the best returns to the grower.

Results

The following cultivars are of most interest to the industry. Some are new introductions to compliment cultivars that have been grown as the standard cultivars for specific production periods.

The Cauliflower Trials were transplanted on the 16th and 23rd July 2018, similar to previous seasons. The main bulk of commercial growers, transplant from late June to early August.

Many of the Late Autumn cultivars performed extremely well as a result of the excellent growing conditions in the Autumn, as can be seen in the top table below.

Results over several seasons will need to be considered when selecting cultivars for production. Full information on all cultivars can be found in the 'Full Trial Report'.

Comments on curd protection, leaf colour, disease resistance/susceptibility, uniformity, curd colour and density, suitability for various markets, defects and ease of harvesting are found in the Full Trial report in the Appendices.

The Spring Greens Trial was planted into good conditions on the 5th September 2018 and produced high quality greens, being harvested in March 2019.

Autumn Cauliflower 2018 Top performing cultivars

A number of Autumn cultivars also produced large curds. (6/tray).

Transplanted at 25315 plants/Hectare (10249/Acre) on the 16th and 23rd July 2018

Please refer to the 'Full Trial Report' for further details.

Seed House	Cultivar	% Class 1	Trays/Hectare (Acre)	Heading period
			Class 1 (8/tray)	10 – 90% dates
Sakata	Denton	92	2531 (1025)	15.10.18 - 22.10.18
Sakata	Jericho	96	2405 (974)	15.10.18 - 22.10.18
Enza Zaden	238013 (729)	86	2534 (1076)	15.10.18 - 22.10.18
Enza Zaden	238014 (728)	86	2657 (1076)	17.10.18 - 22.10.18
Enza Zaden	238017	84	2277 (922)	19.10.18 - 01.11.18
Enza Zaden	238012 (722)	90	2089 (846)	22.10.18 - 08.11.18
Rijk Zwaan	26-462	88	2467 (999)	22.10.18 – 05.11.18
Sakata	Amandine	89	2600 (1053)	22.10.18 - 01.11.18
Sakata	CAU 02944	86	2151 (871)	25.10.18 - 05.11.18
Enza Zaden	238015 (730)	88	2766 (1120)	25.10.18 - 29.10.18
Monsanto	SV5965	88	2216 (897)	29.10.18 - 12.11.18
Monsanto	Velino	78	2405 (974)	05.11.18 - 19.11.18

Winter Cauliflower 2018 - 19 Top performing cultivars.

Typically harvesting from Early November to April. Most commercial cultivars grown produce a minimum of 70% marketable crop with some cultivars producing 70% + Class 1 Cauliflower at the beginning and end of this harvest period, in a typical season.

Yields will vary as there were two transplanting dates (16th and 23rd July 2018). Plant spacings were the same for each cultivar within the Trials.

Some cultivars also produced larger curds that are included on the table below.

Transplanted at 21193 plants/Hectare (8580/Acre)

Please refer to the 'Full Trial Report' for further details.

Seed House	Cultivar	% Class 1	Trays/Hectare (Acre)		Heading period 10 – 90% dates
			Class 1 (8/tray)	(6/tray)	
Enza Zaden	Anique	90	1323 (536)	1412 (572)	22.10.18 - 29.10.18
Monsanto	5982	88	2185 (885)	177 (72)	01.11.18 - 15.11.18
Rijk Zwaan	Tramont	88	1985 (715)	548 (222)	05.11.18 - 15.11.18
Elsoms	Telde	80	2119 (858)		05.11.18 - 19.11.18
Elsoms	Maginot	88	2329 (943)		03.12.18 - 17.12.18
Clause	Triomphant	90	2383 (965)		06.12.18 - 20.12.18
Elsoms	Jeroboam	80	2119 (858)		27.12.18 - 03.01.19
Vilmorin	Trevaskis	72	1906 (772)		24.01.19 - 04.02.19
Elsoms	Lannion	84	2225 (901)		31.01.18 - 07.02.19
Monsanto	5697	80	2119 (858)		31.01.19 - 07.02.19
Clause	Fleet	78	2067 (837)		31.01.18 - 12.02.19
Syngenta	5092	84	2225 (901)		04.02.19 - 18.02.19
Clause	CHF 16-6021	80	2119 (858)		04.02.19 - 18.02.19
Vilmorin	Parotis	74	1961 (794)		07.02.19 - 18.02.19
Monsanto	Carantic	84	2225 (901)		07.02.19 - 25.02.19
Clause	Mengwenn	90	2383 (965)		18.02.19 - 25.02.19
Vilmorin	Stromness	82	2013 (815)	212 (86)	25.02.19 - 05.03.19
Clause	Mascaret	86	2277 (922)		25.02.19 - 05.03.19
Elsoms	Isadora	78	1694 (686)	494 (200)	25.02.19 - 05.03.19
Vilmorin	Vedis	88	2064 (836)	353 (143)	05.03.19 - 28.03.19
Elsoms	Tempest	78	2064 (836)		07.03.19 - 21.03.19
Elsoms	Almeria	90	1998 (809)	503 (204)	07.03.19 - 18.03.19
Vilmorin	AK 2706	82	1378 (558)	1059 (429)	14.03.19 - 28.03.19
Clause	Armengo	88	2277 (922)	71 (29)	21.03.19 - 28.03.19

Late heading Winter Cauliflower 2018-19 Top performing varieties

These plots were transplanted on the 16th July 2018 aiming to head in the period of April through to Late May 2018. Over recent seasons there has been a shortage of Cauliflower for this period which has resulted in the increase of imported produce to maintain supply to the various market outlets. Although fixed price returns to the grower over this heading period are not guaranteed there is scope to aim for this market share.

Transplanted at 21193 plants/Hectare (8580/Acre)

Some cultivars also produced larger curds which are included in the table below.

Please refer to the 'Full Trial Report' for further details.

Seed House	Cultivar	% Class 1	Trays/Hectare (Acre)		Heading period 10 – 90% dates
			Class 1 (8/tray)	(6/tray)	
Clause	Avelmore	82	2013(815)	212 (86)	04.04.19 - 23.04.19
Elsoms	Fletcher	88	1430(579)	1200 (486)	11.04.19 - 23.04.19
Clause	Aureo (CLX 33612)	88	1323(536)	1341 (543)	16.04.19 - 23.04.18
Vilmorin	VT 4901	86	1378(558)	1200 (486)	16.04.19 - 23.04.19
Elsoms	Cartagena	86	1165(472)	1484 (601)	23.04.19 - 06.05.19
Elsoms	Seth	88	1218(493)	1484 (601)	06.05.19 - 13.05.19

The trials were undertaken at Trevarnon Farm. Gwithian, Cornwall. The soil type being a sandy clay loam. The site is south facing and is part of a farm rotation based around Brassicas, cereals and grass break crops.

The Farm has traditionally grown Brassica crops supplying both the multiple and local markets.

The Trial itself is treated as a commercial crop undergoing similar field operations as the commercially grown crops. The cultivars are harvested twice a week on a similar basis as commercial crops on the farm.

Spring Green cultivars 2018 – 19 Main Results

<u>Seed house</u>	<u>Cultivar</u>
Monsanto	Winter Supreme
A L Tozer	Winter Green
Nickerson	Kempsey
Monsanto	Winter Special

Seed House Cultivar	Comments and observations on 19.03.2019	Transplanting Date	Harvest dates	Pack out yield Trays/Hectare (Acre) (10 bags x 550grams)
Monsanto Winter Supreme	Very leafy. Paler inner leaf. Dark green outer leaves. Very Uniform. Upright frame. Good greens. 94% marketable	05.09.18	19.03.2019	1486 (602)
A. L. Tozer Wintergreen (Traditional open pollinated variety)	Crinkled leaf type. Variable size plants/greens. Dark green leaf. Leggy. A little Xanthomonas/Ring spot on older leaves. 72% marketable	05.09.18	19.03.2019	1180 (478)
Nickerson Kempsey	Uniform. Medium height. Slightly crinkled leaf. Mid green in colour. Good greens. A few gaps. 76% marketable	05.09.18	19.03.2019	1269 (514)
Monsanto Winter Special	Compact leaf and stem. Dark green leaf. Very uniform. Heavy cabbage greens. Easy to cut. Not as tall as Winter Supreme. 90% marketable	05.09.18	19.03.2019	1558 (631)

Main conclusions

All of the cultivars that have performed well during 2018 – 19 are commercially available to growers, each with their own characteristics, traits and qualities. The large number of cultivars available enables growers to select suitable cultivars for their production systems, which vary from farm to farm and area to area. The cultivars available ensure continuous supply complimenting each other throughout the production period. However there is a continuous need to improve output and quality especially in the production period between late December and early February where yields can be lower. There have been a number of new introductions over this period which have performed very well alongside established cultivars.

Trials have also been undertaken where a number of confidential cultivars from a range of seed companies have been assessed with some new named cultivars being introduced into the commercially available cultivar Trials for 2019 -20 and a number to follow in subsequent years. There is renewed interest in the Late heading cultivars for the heading period of April and into mid-May.