



Agriculture & Horticulture  
DEVELOPMENT BOARD



# Grower Summary

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## SF 134

The performance of new June-bearing strawberry varieties and advanced selections in raised soil beds

Annual 2013

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**Project Number:** SF 134

**Project Title:** The performance of new June-bearing strawberry varieties and advanced selections in raised soil beds.

**Project Leader:** Sarah Troop

**Contractor/(s):** Meiosis Ltd

**Industry Representative:** Stephen McGuffie

**Report:** Annual Report, 2013

**Publication Date:** 23/05/2014

**Previous report/(s):** None

**Start Date:** 1 April 2012

**End Date:** 30 September 2014

**HDC Cost (Total cost):** £31,270 (plus £1,000 'in-kind' contribution from New Farm Produce)

### **Further information**

If you would like a copy of this report, please email the HDC office ([hdc@hdc.ahdb.org.uk](mailto:hdc@hdc.ahdb.org.uk)), alternatively contact the HDC at the address below.

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# **GROWER SUMMARY**

## **Headline**

- A number of strawberry varieties in this trial have the potential for successful production in the UK

## **Background**

The variety Elsanta has been used as the standard June-bearing strawberry variety in field soil production in the UK for over 25 years. However, it has a number of limitations for growers in that it produces a significant proportion of small/medium sized and misshapen fruits, resulting in a poor grade-out of Class 1 fruit. In addition, it offers little in the way of insect pest or disease resistance, making it difficult to grow in some field soils or cropping situations.

There is a need to identify new and improved June-bearing varieties, which offer viable alternatives to Elsanta, which are not only commercially acceptable to UK growers but also to all market outlets also.

The specific aim of the project is to find a variety which in soil culture, reliably produces larger berries than Elsanta with a higher proportion of regular shaped class 1 fruit and some pest and disease resistance, thereby increasing profitability without requiring any major change to the current production system.

Varieties selected for inclusion in this trial come from the East Malling Strawberry Breeding club and other European breeding programmes. It is believed that by restricting the trial to European varieties, the candidates will be better suited to UK growing conditions and the UK marketplace. Where possible varieties have been selected that have no exclusivity to grower groups. The standard varieties Elsanta and the more recently bred Malling Centenary, were included for comparison.

## Trial details and results of the 2013 60-day crop

For full results of the 60-day crop in 2013, refer to the full trial report. A brief summary of the trial and results in 2013 are included in this Grower Summary section.

### *Varieties included in the trial*

Details of the varieties selected for inclusion in the trial along with their origin, season of production and plant types chosen for establishing the trial are included in the table below:

<b>Variety/ Selection</b>	<b>Breeder</b>	<b>Country</b>	<b>Season</b>	<b>Plant Type</b>
Flair	Goossens Flevoplants BV	Netherlands	Early	Tray 9cm x 7cm
Vibrant	East Malling Research	UK	Early	Tray 9cm x 7cm
EM1905	East Malling Research	UK	Early	Tray 9cm x 7cm
Capriss	CIREF	France	Early-mid	Tray 9cm x 7cm
FC15	CRA-FRF	France	Early-mid	Tray 9cm x 7cm
Malling Centenary	East Malling Research	UK	Early-mid	Medium waiting bed
CIR903	CIREF	France	Early-mid	Tray 9cm x 7cm
Elsanta	Plant Research International (PRI)	Netherlands	Mid	Tray 9cm x 7cm
EM1746	East Malling Research	UK	Mid-late	Tray 9cm x 7cm
EM1990	East Malling Research	UK	Mid-late	Tray 9cm x 7cm
EM1942	East Malling Research	UK	Mid-late	Tray 9cm x 7cm
FF1005 (Vivaldi)	Fresh Forward	Netherlands	Late	Heavy waiting bed
FF1004	Fresh Forward	Netherlands	Late	Heavy waiting bed

### *Trial details*

New Farm Produce hosted the variety trial on their Hanch site in Staffordshire. Particular thanks are extended to Stephen McGuffie of New Farm Produce for his support with the trial. The field used for the trial had grown raspberry plants in the previous year. Raised beds were formed in autumn 2012, fumigated with Basamid and covered in black polythene. The trial was planted in the middle of a commercial crop of first year Malling Centenary and second year Elegance. The area selected was as uniform as possible in terms of aspect, slope, drainage and soil type with no edge effects. The trial was located in the centre three '2-row beds' of a five-bed tunnel. Fertigation and crop protection were managed by New

Farm Produce, receiving the same treatment as the surrounding commercial crop of Malling Centenary.

Plants were planted in March 2013 at a spacing of 40 cm between plants and 35 cm between rows (density of 24,500 plants/ha). Each plot contained 20 plants. The trial was established in a randomized block design, with three replicates per variety. The crop was covered by a Spanish tunnel at from the start of picking. Fruit started picking on 17<sup>th</sup> June and continued until 8<sup>th</sup> August.

#### *Plant characteristics*

Records of plant vigour and growth characteristics are listed in the table below.

Variety	% Establish-ment in 2013	Plant vigour 1 = low 5 = very vigorous	Runner production 1 = none 5 = prolific	Av. crown number per plant	Av. truss number per plant	Av. flower number per truss	Powdery mildew 1 = none 5 = high incidence
Flair	100	3.0	3.0	3.75	5	12	3.0
Vibrant	98.34	2.5	3.0	3.0	3	8	2.0
EM1905	98.34	4.0	3.0	3.5	2	6	1.5
Capriss	100	4.5	3.0	3.5	5	7	1.0
FC15	100	4.0	3.5	4	2	6	1.0
Malling Centenary	100	4.0	3.0	3.5	2	6.5	1.0
CIR903	96.67	4.5	5.0	5.5	5.5	12	1.0
Elsanta	96.67	3.0	1.0	3.5	3	11	2.5
EM1746	100	2.5	2.5	3.5	2	12	2.5
EM1990	100	3.0	2.5	4.5	1	7.5	3.0
EM1942	100	4.0	2.5	3.75	3	8	1.0
FF1005	100	5.0	4.0	4.25	2	11.5	2.0
FF1004	100	5.0	3.5	3.5	4	14	1.5

## Yield records

Season of production, yields, grade-out and fruit size are summarized in the table below:

Variety	50% harvest date	Total yield g/plant	Class 1 Yield g/plant	Class 1 yield as a % of Elsanta	% Class 1	Class 1 Berry Size %		
						Extra large >45 mm	Large 35-45 mm	Medium 25-35 mm
FF1005 *	12/07/13	657	531	164%	80.5	4.91	34.77	60.32
FF1004 *	17/07/13	605	496	153%	82.0	18.17	49.18	32.65
CIR903	12/07/13	593	491	152%	82.8	4.82	39.04	56.40
Flair	02/07/13	394	351	109%	89.3	5.08	55.40	39.52
Vibrant	05/07/13	354	331	102%	93.7	4.05	68.35	27.60
Elsanta	09/07/13	405	323	100%	79.7	3.95	55.56	40.49
Malling Centenary*	09/07/13	306	300	93%	97.9	16.24	61.22	22.55
FC15	08/07/13	311	283	88%	91.0	27.39	48.43	24.18
EM1942	14/07/13	290	275	85%	94.8	9.18	52.42	38.40
EM1990	10/07/13	254	248	77%	97.5	16.13	60.54	23.30
Capriss	07/07/13	268	237	73%	88.0	3.26	46.14	50.60
EM1746	11/07/13	304	236	73%	78.0	0.80	49.22	49.97
EM1905	05/07/13	224	219	68%	97.5	12.57	62.76	24.67

The final results from this project will not be available until late summer 2014 when a full picture of each of the varieties' fruit yield, fruit quality, plant habit, disease susceptibility and seasonality of production will be presented. The discussion that follows is based only on the results available from year 1; the conclusions drawn may therefore differ to those in the final report.

In the project's first year, FF1004, FF1005 and CIR903 produced the highest total and class 1 yields. However, CIR903 showed a susceptibility to crown rot (*Phytophthora cactorum*) and had disappointing fruit quality including the flavour and brix levels, which will limit its use. The flavour of FF1004 was not liked as much as Elsanta. FF1005 had a dark red skin colour with a lower than average shelf life.

Over 70% of fruit produced by Vibrant, Malling Centenary, FC15, EM1990 and EM1905 was of large fruit size, whilst class 1 percentages were all over 70%. The class 1 yield produced by EM1905 was the lowest in trial at only 68% that of Elsanta, though it does have an early season which may compensate for this yield deficit. The class 1 yield of Malling Centenary was similar to Elsanta despite the use of medium waiting bed plants in trial.

Flair had a similar total yield and berry size to Elsanta though class 1 percentage was better. However, the skin firmness and shelf life was lower than Elsanta.

Malling Centenary and EM1990 were the varieties with the best overall performance in terms of fruit quality attributes including good brix levels and eating qualities.

At this mid-point in the trial, there are many varieties/selections with yield results similar to Elsanta and of these some stand out in terms of fruit quality. More information is required from the 2014 harvest before any decisions can be made as to the suitability for UK production of any of these varieties.

Seasonality will be key to determining whether some of the above varieties will succeed in UK production and have the potential to produce improved returns to the grower over the currently grown varieties.

## **Conclusions**

In this first year of the project the following conclusions are drawn from 60-day cropping of 12 varieties in raised bed soil culture when compared to Elsanta:

- FF1004, FF1005 and CIR903 produced significantly higher fruit yields than Elsanta and the other nine varieties/selections in trial, though each had fruit quality concerns.
- Malling Centenary and EM1990 produced the best overall fruit quality, outperforming Elsanta and the other 9 varieties/selections in trial.
- CIR903 suffered from crown rot (*Phytophthora cactorum*) and had poor fruit flavour and shelf life; it is unlikely to be recommended for UK production.
- A number of varieties in trial have the potential for successful production in the UK but their seasonality and main crop performance will be the deciding factor for profitable production.
- The second year main crop results are required before any firm conclusions can be drawn.