



Grower Summary

SF 096a

East Malling Strawberry
Breeding Club

Annual 2017

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Project title: East Malling Strawberry Breeding Club

Project number: SF 96a

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Report: Annual report, June 2017

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Date project commenced: 1 June 2013

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(or expected completion date):

GROWER SUMMARY

Headline

- Six new selections, four June-bearers and two everbearers, were selected from the 2016 East Malling Strawberry Breeding (EMSBC) preliminary trials to go forward to UK growers' trials.

Background

The main objective of the East Malling Strawberry Breeding Club (EMSBC) strawberry breeding programme is to develop improved strawberry varieties, both June-bearing and ever-bearing with increased yield, larger fruit size, an extended season of production and greater resistance to fungal diseases. Funding for the programme was renewed in 2013 to follow on from the first tranche of the EMSBC breeding programme which had started in 2008 and had delivered the June-bearer variety Malling™ Centenary. AHDB continues to contribute to the EMSBC via project SF 96a.

This report covers three preliminary trials held at NIAB-EMR in 2016 that are part-funded by the AHDB membership of the EMSBC (June-bearer main crop, 60-day and everbearer trials), as well as a brief summary of more advanced selections that have been assessed on EMSBC growers' sites.

Results of selection trials

Descriptions and results from the most promising selections in each of the 2016 trials are provided below and are accompanied by tables of results for each preliminary trial:

June-bearer (main crop) trial

Four selections were considered for assessment in growers' trials in 2018/19; descriptions and data for each selection appear below and in Tables 1 and 2:

EM2448 – a very-early season type with a 50% pick date comparable to Clery. Fruit size was good (57% >35mm), with a moderate yield but an excellent percentage of Class 1 fruit (91%). Berries were attractive, with good shelf-life and judged to have better flavour than both of the early standards (Clery and Vibrant).

EM2464 - has potential as an early season variety, with a 50% pick date slightly earlier than Vibrant. A good Class 1 yield (683g/plant) of attractive fruit, with very little grade out (96%

Class 1) was produced. Fruit size was good (60% >35mm) and berries showed excellent shelf-life. This selection showed sufficient promise to be fast-tracked to **large-scale growers' trials** in 2018.

EM2483 - an early-mid season selection with a very high yield for this trial (1.3kg/plant) combined with excellent fruit size (73% >35mm). Berries were very attractive with good colour and shelf-life but were marked down for some uneven shapes on the first pick.

EM2494 - a mid-late season type, producing very attractive fruit a few days later than Elsanta which also performed very well in shelf-life tests. Yield was high for this trial (1kg/plant), and combined with good fruit size (57% >35mm) and a high percentage Class 1 (90%), makes this an interesting selection for further assessment.

Table 1. June-bearer selections. Main crop yield, fruit size and season

Selection	Class 1 yield (g/plant)	% Class 1	% large fruit (>35mm)	50% pick date
EM2448	473	91	57	16 Jun
EM2464	683	96	60	16 Jun
EM2483	1276	89	73	20 Jun
EM2494	1048	90	57	27 Jun
<i>Elsanta</i> ¹	925	75	44	23 Jun
<i>M. Centenary</i> ²	676	91	63	20 Jun

¹Mean of three plots

²Mean of two plots

Table 2. June-bearer selections. Main crop fruit quality scores

Selection	Appearance (1-9)	Skin firmness (1-9)	Flesh firmness (1-9)	Flavour (1-9)	Shelf life (1-5)	Mean Brix
EM2448	5.4	6.0	5.6	5.7	3.0	7.9
EM2464	5.6	5.7	5.7	5.6	4.3	7.9
EM2483	4.9	5.5	5.6	5.2	3.6	7.7
EM2494	6.1	6.3	6.3	5.6	3.0	8.0
<i>Elsanta</i> ¹	4.6	5.8	5.2	5.4	2.7	7.9
<i>M. Centenary</i> ²	6.1	6.3	6.2	6.0	2.9	8.7

¹Mean of three plots

²Mean of two plots

Full descriptions of the fruit quality scoring system can be found in Appendix I of the main report, but as a guide 1=poor, 9=excellent, shelf life comparison 1=worse, 3=same, 5 better than standard

June-bearer (60-day) trial

This trial included selections that have progressed for assessment in growers' trial in 2017 or to be retrialled. Summarised data from the trial is shown in Table 3. Two selections showed good potential in the 60-day (programmed cropping system):

EM2199 - an early-mid season selection, which was comparable to Sonata in terms of yield and plant size, and Malling Centenary when considering yield per mm of crown. It had a high % Class 1 for this trial (79%) and had an early 50% pick date, ahead of Malling Centenary. Fruit was considered to be very attractive with good colour and gloss throughout the season.

EM2421 - a mid-late season selection that gave a marketable yield that was similar to Elsanta but with a higher % Class 1, more comparable to Malling Centenary. The mean Brix score was also very high (9.8°). These results correlate well with its performance in main crop production in 2015.

Table 3. June-bearer selections. 60-day yield, crown size and season

Selection	Marketable yield ¹ (g/plant)	% marketable yield	Mean crown diameter (mm)	Marketable (g/plant) yield per mm crown diameter	50% pick date
EM2199	130.0	79.0	9.1	14.3	14 Jul
EM2370	72.1	60.0	11.8	6.1	11 Jul
EM2380	96.4	69.9	11.1	8.7	18 Jul
EM2421	115.9	72.7	9.6	12.1	28 Jul
<i>Elsanta</i> ²	113.2	62.6	12.1	9.5	22 Jul
<i>M</i>	144.9	73.8	10.4	14.1	18 Jul
<i>Sonata</i> ²	136.7	60.4	9.5	14.6	22 Jul

¹ >28 mm

² mean of two plots

Everbearer trial

Two new selections were considered for assessment in growers' trials in 2018. Data (Table 4 & 5) and descriptions are shown below:

EMR722 - an early season everbearer selection, with a moderate yield (649g/plant) but excellent fruit size (71% >35mm) and high % Class 1 (84%) as well as a high mean Brix score (9.1°). Fruit quality was very good, with good flavour combined with good firmness (Table 5).

EMR721 - had very good fruit size (63% >35mm) and high percentage of Class 1 fruit (80%). Berries were glossy, a pleasant flavour and good mean Brix score (8.1°) and appeared to be mildew resistant.

Table 4. Everbearer selections. Yield, fruit size and season

Selection	Class 1 yield (g/plant)	% Class 1	% large fruit (>35mm)	50% pick date
EMR722	649	84	71	1 Aug
EMR721	7999	80	63	8 Aug
<i>Evie 2</i>	908	63	66	11 Aug
<i>Finesse</i>	889	76	42	15 Aug
<i>M. Star</i>	815	70	50	1 Aug

Table 5. Everbearer selections. Fruit quality scores

Selection	Appearance	Skin firmness (1-9)	Flesh firmness (1-9)	Flavour (1-9)	Shelf life (1-5)	Mean Brix
EMR722	5.3	6.4	6.6	5.6	2.0	9.1
EMR721	5.5	6.2	6.3	5.6	1.0	8.5
<i>Evie 2</i>	5.2	5.5	5.5	5.0	1.6	6.3
<i>Finesse</i>	5.4	6.4	6.2	4.9	3.5	7.3
<i>M. Star</i>	5.6	6.1	6.1	5.9	2.8	9.0

Full descriptions of the fruit quality scoring system can be found in Appendix I of the main report, but as a guide 1=poor, 9=excellent, shelf life comparison 1=worse, 3=same,5 better than standard

Offsite main crop (June-bearer) growers' trial

Five advanced selections (EM1974, EM2290, EM2298, EM2315, and EM2320) were trialled but none will progress to further trials.

Offsite 60-day (June-bearer) growers' trial

Three advanced selections, EM2192, EM2056 and EM2157, performed sufficiently well in the 60-day trial to progress to main crop trials in 2017, with EM2157 also being fast tracked towards commercialisation with first commercial sales expected in 2018/19.

EM2192 - is an early selection, with a season similar to Vibrant, but with glossy, brighter berries and also showing resistance to crown rot.

EM2056 - is a mid-late selection producing large, well-displayed fruit and has good all round disease resistance.

EM2157 - is a late 'Malling Centenary'-type selection, having a season similar to 'Florence' but with better fruit size, Brix scores, appearance and plant habit.

Offsite everbearer growers' trial

Two advanced selections, EMR564 and EMR635 will progress to further trialling, both having good fruit quality attributes and disease resistance. EMR564 has been put forward for commercialisation with first commercial sales expected in 2018/19, and EMR635 will progress to large-scale growers' trials in 2018/19.

EMR564 - has an early season of production with a high Class 1 yield and large fruit size. Fruit

was glossy and attractive with very uniform colour, firm skin and very firm flesh. Flavour was judged to be pleasant with an average Brix score of 7.9°. Fruit was displayed on long trusses. Initial assessments indicate that EMR564 shows resistance to crown rot and Verticillium wilt, with moderate resistance to mildew.

EMR635 - a high-yielding everbearer with excellent fruit size and a high percentage of Class 1 fruit. Fruit was well-displayed, with an attractive appearance and slightly aromatic flavour. Initial assessments indicate that EMR635 shows resistance to mildew and crown rot.

Main conclusions

Six new selections, four June-bearers and two everbearers, were selected from the 2016 East Malling Strawberry Breeding (EMSBC) preliminary trials to go forward to UK growers' trials. Of the four June-bearers; two were early selections, one was early-mid season and the fourth was a mid-late season type. All will be trialled on UK growers' sites in 2018/19. In addition, 16 advanced selections were trialled on growers' sites, with five of these progressing to further trials and two selections, a late June-bearer and an everbearer, have been identified to go forward for commercialisation.

