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Early Star

Photos: Stefano Lugli

Seven new cherry varieties from Bologna

In recent years, seven varieties from the cherry breeding programme of the University of Bologna (Italy) have been launched onto the market. The varieties differ in ripening time from early (prior to Burlat) to late (after Lapins). The seven varieties are marketed as the 'Star series'.

The seven sweet cherry cultivars making up the Star series bred at Italy's Bologna Universi-



Sweet Early

ty are derived from crosses of quality-selected European genotypes and self-fertile American counterparts. All the new releases are covered by EU patent and some are covered by those from Australia, Chile, South Africa and the US. All the licensing arrangements with individual or groups of nurseries for the Star series are handled through the CRPV agri-services agency in Cesena. Figure 1 shows the current number of licenses and the countries in which they were granted. The number of Star-series plants propagated from 2000 to 2007 in Italy alone amounts to over 250,000. The seven Star cultivars cover a ripening period of about four weeks in the Vignola district that runs from 20 May with Sweet Early® (several days pre-Burlat) and ends in mid-June with Big Star (with Lapins).

The Start is Sweet & Early

Sweet Early is an attractive early-season cherry of uniform ripening, vigorous growth habit and is picked at CTIFL color code 4 in a single run 2 days pre-Burlat. Individual fruits are large, most (62%) being 28 mm, and sweet, the sugar content usually being 16 °Brix and acidity less than 4 g/l. Our field trials have shown cropping levels at a good 16-18 tons per hectare on traditional rootstocks but only from orchard year 4 on. Yet, on the other hand, Sweet Early has also shown good early bearing in certain growing districts of northern Italy when grafted to Giselle 5 and Giselle 6 dwarfing stocks. For new plantings with vigorous stock, it is advisable to use a slender-vase, multi-axis training system along with long pruning regime ('taille long') over the first 4-5 years of orchard life.

Early Star: Just after Burlat

Early Star is attractive because it crops early, just after Burlat, and fruit quality is good. It responds more or less like Sweet Early®, including the same defects, when grafted to traditional rootstocks. For example, it crops poorly on Colt, perks up on MM 14 and CAB 6P (*Prunus cerasus*) to 15-20 t/ha by year 6-7, and has decidedly good cropping on Giselle 5. Fruits range in size from 26 mm (45%) to 28 mm (38%) and have good flesh firmness but tend to be tart tasting with mediocre flavour. Early Star® has picking window that spreads over a good a 7-8 days at CTIFL 6 (like New Star) in our fields tests, with a notable increase in fruit size and a slight slip in firmness towards the end.

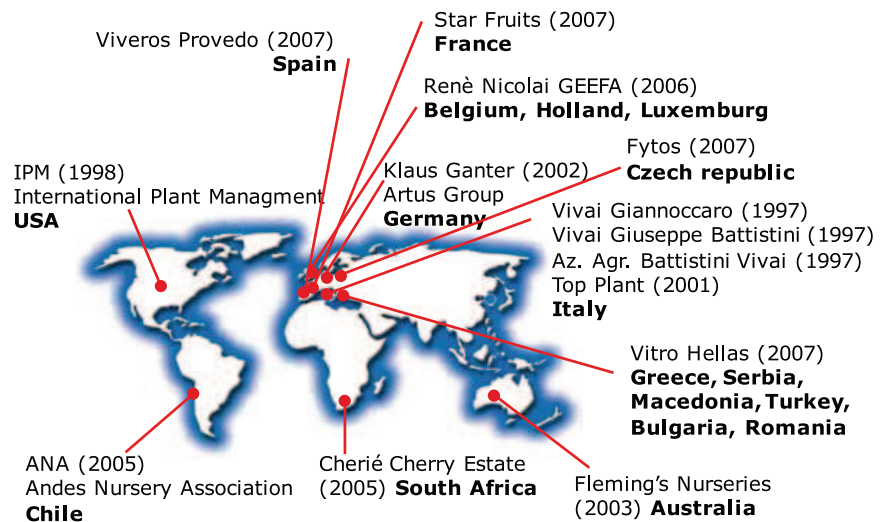
Grace & Black: pair of aces

The marquee headliner of the series is Grace Star. It ripens early-to-mid season, produces large, notably size-uniform attractive fruits that are very popular with consumers for both eye-appeal and taste. It won the Best Cherry in Italy award in 2007 at a contest held by Italy's Capitol of Cherries. It crops well, never in excess, on MM 14 and CAB 6P, respectively 15 and 20 t/ha, and nearly 80% of the fruits are larger than 28 mm with semi-firm flesh and a balanced sugar-acid ratio. Grace Star picks 10-12 days after Burlat (like Giorgia) usually at CTIFL 2-3. If it is picked later, say at CTIFL 4, in our warm and humid climate, the flesh begins to soften.

Black Star, the black star

As its name suggests, Black Star has fruit that has dark red, almost black, skin color and a good tolerance to cracking. Consumers like the size and flavour of its firm fruit. When grafted to vigorous rootstocks, it begins bearing from orchard year 4 and reaches full cropping by year 6-7 with average per annum yields figures being approximately 35 t/ha on CAB 6P, 25 t/ha on MM14 and 18 t/ha on Colt. More than 70% of the fruits from trees on CAB and MM14 are larger than 28 mm and more than 90% are on Colt. Black Star has a mid-season, wide-window ripening period 16-18 days post-Burlat (like Van). When picking is delayed up to CTIFL 6, our performance data show increases in fruit weight as

Figure 1: Licensed nurseries for production of Star varieties



high as 12 g and in sugar content by as much as 20°Brix without change in flesh firmness.

The new entry is Big

The latest addition to the Star suite is Big Star. Given that its picking date occurs at CTIFL 5 a couple of days before Lapins, and that the latter is the major variety in northern and central Italy, Big Star will probably take longer to achieve market success than its sisters did. It has a cropping habit similar to the other cultivars in the suite, although it less early in initial bearing compared to Lapins. Yields over the last two years (year 6 and 7) have been at and, in the last year, over those of Lapins; it performs



Big Star

very well on CAB 6P and MM14. The fruit of Big Star are semi-firm, sweet, sub-acid, very juicy and of a size that is prevalently larger than the 28 mm recorded on Colt (80% of fruit), CAB 6P and MM 14 (more than 65%). A recent consumer survey conducted at Alberobello in Apulia found it was more popular than both Lapins and Ferrovia (Schneider's).



Black Star

Table 1: Production (tonnes/ha) of the 5 Star cultivars on 3 rootstocks

Cultivar	Year	Rootstock			
		Colt	MM 14	CAB 6P	Avg
Sweet Early	6	2,7	3,4	5,1	3,7
	7	11,3	16,7	18,1	15,4
Burlat	6	4,7	8,7	5,8	6,4
	7	8,3	8,9	10,3	9,2
Early Star	6	0,4	5,1	7,9	4,5
	7	10,8	19,6	14,6	15,0
Grace Star	6	14,9	7,1	14,9	12,3
	7	19,3	12,2	19,3	16,9
Giorgia	6	8,2	10,1	10,9	9,7
	7	15,8	16,8	12,3	15,0
Black Star	6	3,2	6,8	10,3	6,8
	7	12,2	27,9	44,8	28,3
Big Star	6	0,9	2,8	4,9	2,9
	7	16,1	18,3	28,8	21,1
Lapins	6	5,9	8,0	10,1	8,0
	7	20,3	19,2	13,8	17,8

Data from Bologna University's trial and selection field at Vignola



Grace Star Fruitsize



Grace Star

Table 2: Fruit quality of the 5 Star cultivars on 3 rootstocks in year 7

Cultivar	Rootstock	% >28 mm	Weight (g)	Firmness Durofel 25	°Brix	Acidity (g/l)
Sweet Early Panaro 1	Colt	12,4	9,2	55,7	15,4	4,53
	MM 14	13,4	8,8	48,6	15,5	4,31
	CAB 6P	12,2	9,3	56,3	14,9	4,29
Burlat	Colt	10,9	7,6	48,0	17,9	7,94
	MM 14	11,0	8,5	42,0	15,8	8,66
	CAB 6P	12,6	9,1	43,8	18,1	9,78
Early Star Panaro 2	Colt	5,4	7,3	54,3	19,8	9,28
	MM 14	1,8	7,6	59,2	16,9	9,73
	CAB 6P	28,7	9,7	59,9	17,1	9,94
Grace Star	Colt	88,7	14,9	74,0	15,8	7,92
	MM 14	51,9	11,9	70,0	15,2	6,50
	CAB 6P	88,2	13,1	74,0	15,2	8,24
Giorgia	Colt	9,0	8,4	69,6	16,5	8,55
	MM 14	16,0	8,6	75,6	15,5	7,65
	CAB 6P	23,6	9,5	74,2	16,9	8,77
Black Star	Colt	91,9	12,5	75,6	16,2	5,79
	MM 14	77,4	12,0	58,9	14,8	5,33
	CAB 6P	74,1	11,5	63,2	15,9	5,72
Big Star	Colt	80,0	11,5	65,0	15,5	5,40
	MM 14	65,5	11,7	59,0	15,5	5,37
	CAB 6P	66,5	11,7	67,0	13,7	4,91
Lapins	Colt	48,0	12,5	59,0	16,6	5,44
	MM 14	18,0	10,1	63,0	15,8	5,83
	CAB 6P	60,0	12,3	56,0	16,1	6,32

Table 3: Picking date and fruit quality of 4 Star cultivars (year 6)

Cultivar	Date	CTIFL color code	Weight (g)	Firmness (kg/cm ²)	°Brix	Acidity (g/l)
Sweet Early Panaro 1	22 may	2	8,3	0,69	14,2	4,3
	25 may	4	10,4	0,55	16,3	5,4
	31 may	6	10,8	0,26	15,0	4,4
Early Star Panaro 2	25 may	3	8,4	0,56	14,1	8,4
	31 may	5	9,5	0,44	15,3	7,9
	07 june	6	11,4	0,41	18,0	7,0
Grace Star	07 june	2	11,1	0,42	14,7	6,7
	12 june	3	12,3	0,36	17,3	6,8
	15 june	4	13,8	0,32	18,0	6,5
Black Star	15 june	3	9,2	0,56	13,8	7,1
	18 june	4	10,2	0,43	15,6	7,4
	23 june	6	11,9	0,40	20,2	7,9

Source: Grandi et al., 2009

Table 4. Consumer survey of Big Star compared to cultivars of same or later harvest date

Cultivar	Appearance		Size		Firmness		Flavour		Overall rating	
Big Star	4,48	a	4,54	a	4,15	a	4,12	a	4,38	a
Ferrovina (Schneider's)	4,13	b	4,10	b	3,76	b	3,93	ab	4,00	b
LaLa Star	4,39	a	4,57	a	4,10	a	4,21	a	4,27	a
Lapins	4,02	b	3,92	c	3,75	b	3,88	b	3,85	bc
Sweetheart Sumtare	3,61	c	3,41	d	3,72	b	3,62	c	3,57	c

Survey of 185 consumers at Alberobello, Bari Prov., Italy.

Rating scale 1-5: 1 = poor / 5 = very good

Means within a column followed by the same letter are not significantly different

Source: Lugli et al., 2008