

# New Hass-like avocado cultivars at Merensky Technological Services – further progress in 2000

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## ABSTRACT

Six new Hass-like avocado cultivars from California (Harvest, Gem, Jewel, Sir Prize, Nobel, 8-22-5) and one Westfalia selection (Bonus) are evaluated. Topworking started in 1996, and the second crop was evaluated in 2000. Results indicate that these new cultivars mature at the same time as 'Hass'. 'Harvest' gave the best results with regard to yield, fruit size and quality after simulated shipment. 'Sir Prize' and 'Jewel' fruit were found to be too large. 'Nobel' fruit did not colour up; and 'Jewel' as well as '8-22-5' had a high incidence of physiological disorders.

**Table 1 Yields (t/ha) and peaks of the fruit size distribution curves of new Hass-like cultivars at Westfalia Estate (top-worked 1996) for the years 1999 and 2000.**

Cultivar	Yield (t/ha) <sup>1)</sup>			Count peak <sup>2)</sup>
	1999	2000	Cumulative	
Harvest	29.2	37.0	66.2	12-16
Sir Prize	18.8	26.0	44.8	8-12
Gem	11.4	28.2	39.6	12-14
Hass	2.8	20.0	22.8	16
Nobel	6.8	7.8	14.6	14
Bonus	0	10.8	10.8	14-16
Jewel	4.6	5.6	10.2	8-10
8-22-5	0	6.6	6.6	8-10

<sup>1)</sup> based on 200 trees/ha

<sup>2)</sup> based on a 4 kg carton

**Table 2a Postharvest quality of the new Hass-like cultivars Harvest, Gem and Nobel, compared with the standard 'Hass' after 28 days storage at 5.5°C (in 2000). Symptoms were rated on a scale of 0 (no symptom) to 3 (severe symptom).**

Cultivar	Harvest		Gem		Nobel		Hass	
	15/07/00	17/08/00	15/07/00	17/08/00	24/05/00 <sup>1)</sup>	15/07/00	15/07/00	18/08/00
Date picked	15/07/00	17/08/00	15/07/00	17/08/00	24/05/00 <sup>1)</sup>	15/07/00	15/07/00	18/08/00
Fruit moisture (%)	79	-	73	-	74	74	71	-
Number of fruit	107	120	120	120	70	120	126	140
Evaluation upon removal from cold storage								
Densimeter	89.7	90.5	90.2	89.6	87.3	83.0	88.0	86.9
Black cold damage	0	0.100	0.075	0.042	0	0.125	0.008	0.014
Lenticel damage	0	0.050	0.150	0.025	0.143	0.042	0.230	0.157
Evaluation when eat ripe								
Skin colour								
Green (%)	0	0	0	0	97	52	0	0
Green/black (%)	53	13	15	1	3	47	4	3
Black (%)	47	87	85	99	0	1	96	97
Anthracoze	0.009	0.017	0.025	0	0	0	0.016	0.079
Stem end rot	0.065	0	0.108	0.008	0	0	0.087	0.107
Grey pulp	0	0	0	0.033	0.114	1.592	0.087	0.150
Vascular browning	0.636	0.550	0.042	0.317	0.014	0	0.246	0.057
Days to ripening	5.5	3.8	4.8	3.9	3.1	3.0	7.2	4.6

<sup>1)</sup> Fruit were stored at 6.5°C

## INTRODUCTION

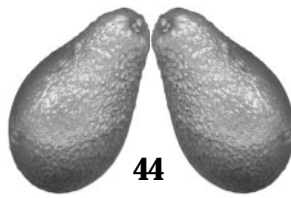
The long term aim of this project is to find a new Hass-like cultivar with higher yield and a more favourable fruit size distribution than 'Hass'. Therefore, the following new Hass-like cultivars are currently being tested at Westfalia Estate: Harvest, Gem, Jewel, Sir Prize, Nobel (previously BL 667), 8-22-5 and Bonus. Progress made with the evaluation of these Hass-like cultivars was reported previously (Kremer-Köhne, 2000) and data are updated in this paper.

## MATERIALS AND METHODS

The new Hass-like cultivars 'Harvest', 'Gem', 'Jewel', 'Sir Prize', 'Nobel' and '8-22-5' originate from a Californian breeding program (Witney & Martin, 1995), and 'Bonus' was selected at Westfalia Estate. Top-working these new Hass-like cultivars started at Westfalia Estate in 1996. For comparison, trees were also top-worked with 'Hass'.

In 2000, fruit were picked on several dates from May to

August and waxed with Avoshine (Citrashine Pty Ltd.). Data on fruit maturity, yield, fruit size distribution and fruit quality after simulated export were collected as described previously (Kremer-Köhne, 1999). Fruit firmness readings were taken with a densimeter (Köhne *et al.*, 1998) upon removal from cold storage. Black cold and lenticel damage were also evaluated upon removal from cold storage, while skin colour, diseases and physiological disorders were rated when the fruit were eat ripe. Fruit size distribution was determined by taking



fruit samples and weighing fruit individually.

### RESULTS

In 2000, 'Sir Prize', 'Harvest', 'Gem', 'Nobel', 'Jewel' and 'Hass' produced their second crop, while '8-22-5' and 'Bonus' produced their first crop. Results indicate that these new cultivars mature at the same time as 'Hass'. Based on the results obtained in 1999, 'Nobel' and 'Jewel' were picked earlier in 2000 than in 1999. Yields and the peaks of the fruit size distribution curves are shown in Table 1. Cumulative yields of cultivars 'Harvest', 'Sir Prize' and 'Gem' were higher than that of 'Hass'. 'Sir Prize', 'Jewel' and '8-22-5' fruit were found to be too large, while the fruit size distribution curve peaks at the more favourable counts 12 to 16 for 'Harvest', and at count 16 for 'Hass'. Fruit quality after simulated export is shown in Tables 2a and 2b. Densimeter readings indicated that 'Jewel' and 'Sir Prize' fruit were soft upon removal from cold storage and could either be picked earlier in the season or stored at lower temperatures. 'Gem' and 'Jewel' fruit did not colour up in 1999, but coloured up in 2000, while 'Nobel' did not colour up in both years. With regard to physiological disorders, '8-22-5' and 'Jewel' were probably picked too late and therefore had a high incidence of grey pulp. Overall, 'Harvest' gave the best results with regard to yield, fruit size and quality after simulated shipment.

### CONCLUSIONS

The good results obtained with the cultivar Harvest in 1999 were confirmed in 2000. Cultivar Harvest matured at the same time as 'Hass' and gave the best results with regard to yield, fruit size and quality after simulated export. Further testing is warranted.

### ACKNOWLEDGEMENTS

The technical assistance of V Ramolefo, A. Ratshili and B.

**Table 2b Postharvest quality of the new Hass-like cultivars Sir Prize, Jewel, 8-22-5 and Bonus, compared with the standard 'Hass' after 28 days storage at 5.5°C (in 2000). Symptoms were rated on a scale of 0 (no symptom) to 3 (severe symptom).**

Cultivar	Sir Prize	Jewel	8-22-5		Bonus	Hass	
Date picked	06/07/00	12/07/00	15/07/00	18/08/00	04/07/00	15/07/00	18/08/00
Fruit moisture (%)	78	69	75	-	73	71	-
Number of fruit	53	37	61	26	70	126	140
Evaluation upon removal from cold storage							
Densimeter	63.8	60.7	87.2	85.9	84.2	88.0	86.9
Black cold damage	0.038	0.054	0.607	0.346	0	0.008	0.014
Lenticular damage	0	0.054	0.426	0.077	0.429	0.230	0.157
Evaluation when eat ripe							
Skin colour							
Green (%)	0	0	0	0	0	0	0
Green/black (%)	6	8	38	0	11	4	3
Black (%)	94	92	62	100	89	96	97
Anthraxnose	0	0	0.426	0.423	0	0.016	0.079
Stem end rot	0	0.108	0.033	0	0	0.087	0.107
Grey pulp	0.113	1.135	1.131	2.269	0.171	0.087	0.150
Vascular browning	0.811	0.027	0.852	1.346	0.043	0.246	0.057
Days to ripening	2.4	3.7	7.9	6.2	4.4	7.2	4.6

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