



Organic apple cultivar testing Denmark 2010 – 2016

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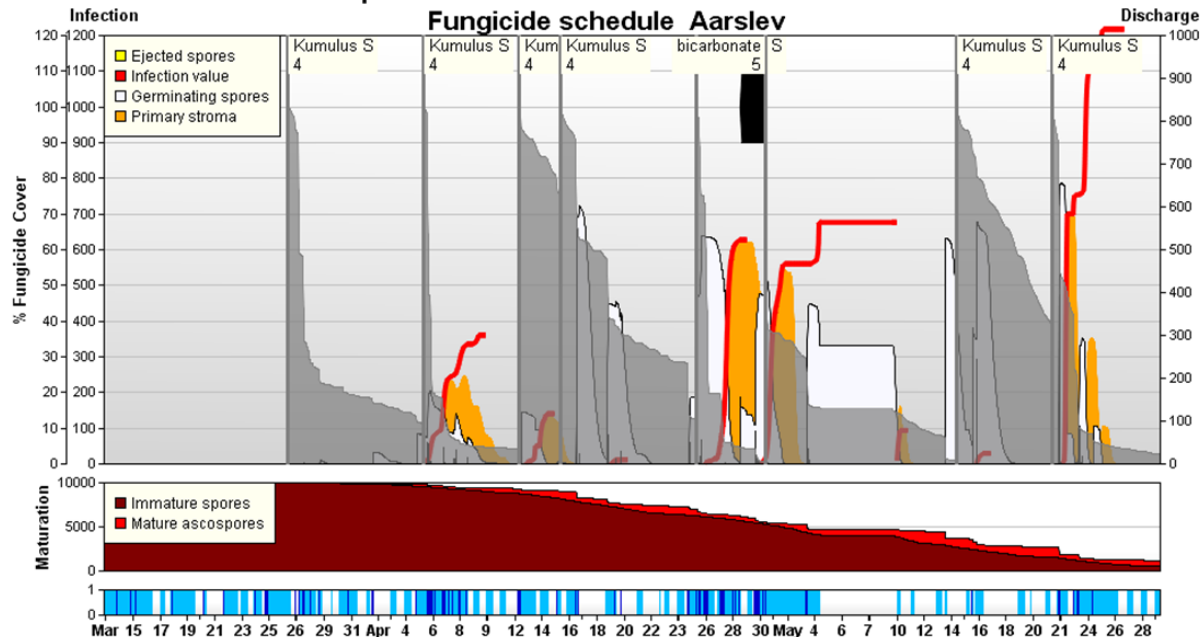
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Field trial

- Planting distance 3,5 x 1 m
- Rootstock M9, some with 'red Aroma' as interstock
- Randomized trial, 4 replicates of 5 trees.
- Pheromone disruption. CLR and CLS in 2015 and 2016.
- Bt and NeemAzaI used in 2014.
- Sulphur and potassium bicarbonate in primary infections periods to control apple scab, 9-13 treatments per year.

RIMpro-Venturia location: Aarslev Imetos M70

Fungicide schedule Aarslev



35	11	9	22	#	#	34	V	
34	11	9	22	19	13	7		
33	11	9	22	19	13	34	V	
32	11	9	22	19	13	6		
31	11	9	22	19	13	6		
30	23	20	24	21	8	6		
29	23	20	24	21	#	6		
28	#	20	24	#	8	6		
27	23	20	24	#	8	6		
26	23	20	24	21	#	6		
25	24	28	12	24	10	6		
24	24	28	12	24	10	6		
23	24	#	12	24	#	6		
22	24	28	34	V	24	#	34	V
21	24	28	12	24	10	6		
20	8	16	13	23	26	6		
19	8	16	13	23	26	6		
18	8	16	13	23	26	6		
17	8	16	13	23	26	6		
16	8	16	13	23	26	33		
15	19	26	28	29	18	33		
14	19	26	28	29	18	33		
13	19	26	28	29	18	33		
12	19	26	28	29	18	33		
11	19	26	28	29	18	34	V	
10	25	23	27	11	12	5		
9	25	23	27	11	#	34	V	
8	25	23	27	11	12	5		
7	25	23	27	11	12	5		
6	25	23	#	11	12	5		
5	22	11	8	18	14	5		
4	22	11	8	18	#	5		
3	22	11	8	#	14	5		
2	22	11	8	18	14	34	V	
1	22	11	8	18	14	#		
Række	1	2	3	4	5	6		

Selection criteria

- Resistant or robust against diseases.
- Suitable for the Danish climate
- Sweet and crispy
- Good shelf life
- Yield
- Tree shape
- Storability

Cultivar	Origin	Scab resistant may be broken	Conclusion
A40R4T119	Czech Republic	x	Ok tree and yield, fruit quality mediocre
A987-74	Czech Republic	?	Ok tree and yield, fine storability and shelf life, sweet and firm, disagreement about taste
Alkmene	Germany		
Apollo	Norway	x	Short storability and shelf life, robust, thick skin, not better than existing cultivars
Artika	Czech Republic	x	Good tree, very long storability, taste improves with storage
Autento	France	?	Robust, mediocre taste and quality, not tolerant of Danish climate?
Flordika	Czech Republic	x	Beautiful fruit, low to medium taste and quality
Fragance	Czech Republic	x	
Frosta	Czech Republic	x	Low to medium fruit quality, not tolerant of Danish climate
Gaia	Italy	x	Robust cultivar, high and precocious yield, nice tree shape, good looking fruit. Fruits are very sweet without acids and we have not been able to store fruits of good quality regardless of picking-time and storage method.
Galiwa	Germany		
Gemini	Italy	x	Not as productive as Gaia, vigorous tree, fruit with short storability and no interesting quality
Ginger Gold	USA		Susceptible to scab and powdery mildew, strong growth, medium fruit quality, Green/yellow
Golida	Czech Republic	x	Very late, big fruits with thick skin, low-medium fruit quality
HL 1080	Czech Republic	x	Short storability
HL 782	Czech Republic	x	
Katja	Sweden		Robust, short storability and shelf life
Maribelle (Lola)	Netherlands		
NZ 4	New Zealand		
Pomfital	Germany	?	Columnar tree, weak growth, low yield, red flesh and very acid fruits
Poul Sloth	Denmark		Vigorous tree, low yield, big fruit, mediocre fruit quality
Red Topaz	Czech Republic	x	
Sansa (Galak)	New Zealand/Japan	x	
Santana	Netherlands		
Smeralda	Italy	x	Robust, high yield, easy tree, too late for Denmark, fruit quality not interesting
Tells 47/05	Netherlands	x	
Tells 58/6	Netherlands	x	Good taste, short storability, extreme russeting
Tells A587	Netherlands	x	Ok tree and yield, nice sugar/acid balance, thick skin, medium taste
Tells A931 / Galant	Switzerland	x	
Vysocina	Czech Republic	x	Vigorous tree, medium taste and quality - unattractive fruit colour
Your Choise	Norway	x	Short storability and shelf life, robust, thick skin, not better than existing cultivars



Santana

Red Topaz

Score 1-9, where 1 = nothing,
for trees August 2016

Cultivar	Planted	Full Bloom	Score 1-9, for trees, August 2016					
			Canker	Mildew	Scab	Aphids	Tortrix	Codling moth
Alkmene	Spring 2015	16. May	1	1.2	1.1	1.3	1.3	1.8
Fragance	Autumn 2011	9. May	1.6	1	2.2	1.1	1.1	1.8
Galiwa	Spring 2013	9. May	1.3	1	1.1	1.2	1.4	1.3
HL 782	Autumn 2011	12. May	1.2	1	3.3	1.3	1.3	1
Maribelle	Autumn 2011	15. May	1.7	1	2.8	1.5	1.1	1.4
NZ4	Autumn 2015	9. May	1.7	1	1.8	1.1	1.1	1
Rød Topaz	Autumn 2011	8. May	2.8	1.1	2.6	1.2	1	1.7
Santana	Autumn 2011	13. May	2.1	1	1.7	1	1.4	2
Tells 47/05	Spring 2012	8. May	1.3	1	1.1	1.5	1.3	1.8
Tells A 931/Galant	Spring 2012	10. May	1.3	1.2	2.9	1	1.3	2

Yield and fruit size

Cultivar	Harvest time		Yield ton/ha		Fruit size g/fruit	
	2015	2016	2015	2016	2015	2016
Alkmene	12. Oct	9. Sep	4.8	7.6	113	130
Fragance	22. Oct	18. Oct	8.3	19.7	105	239
Galiwa	15. Oct	4. Oct	9.7	9.2	103	167
HL 782	22. Oct	4. Oct	4.7	14.2	94	180
Maribelle	26. Oct	18. Oct	9.9	42.5	188	207
NZ4	.	20. Oct
Red Topaz	.	11. Oct	.	25.1	.	170
Santana	.	8. Sep	.	19.9	.	204
Tells 47/05	15. Oct	14. Sep	17.8	25.7	79	114
Tells A 931/Galant	22. Oct	4. Oct	14.3	40.8	98	140



Alkmene



Lola/Maribelle



Galiwa



NZ 4

Fruit color and damages on fruits 2016.

50 fruits per cultivar.

Cultivar	Color	surface color	Surface color	Russeting	Apple scab	Apple scab	Sooty blotch	Topaz spot	Apple sawfly	Codling moth
		1=not covering 2=covering	%	1-5, where 1= nothing	% discarded	% infected	% infected	% infected	% infestation	% infestation
Alkmene	2.1	1.4	61	2.6	0	2	16	0	28	0
Fragance	7.7	2	73	3.1	0	14	64	2	34	0
Galiwa	4.4	1.5	64	4.1	0	8	30	10	52	8
HL 782	6.7	1.8	70	2.9	10	48	34	20	26	4
Maribelle	3.6	1.4	41	4.3	2	18	50	0	18	0
NZ4	2.2	.	11	2.3	0	0	0	0	18	0
Rød Topaz	3.6	2	74	2.5	0	2	60	8	32	0
Santana	3.9	1.2	53	2.4	0	10	26	12	36	6
Tells 47/05	3.1	1.1	48	2.1	0	2	56	32	22	0
Tells A 931/Galant	3.2	1.7	60	3.5	4	30	36	2	26	2

Color:

Score 1 –8, where:

1 = no

2 = orange

3 = pink

4 = red

5 = dark red

6 = blue/red

7 = Brown

8 = brown/red

Sensory quality Score 1-9

	Date of testing	Peel thickness	Peel chewyness	Juicyness	Firmness	Chripssness	Sugar/acid balance	Aroma	Aroma	Maturity	Eating quality
Cultivar		thin-thick	chripss-chewy	juicy-dry	firm-soft	chripss-mealy	Sour-sweet	low/high	fresh/perfume	not ripe - overripe	bad-good
Santana	09-10-2013	4.4	4.2	3.3	3.8	3.1	3	4.6	2.5	3.6	4.5
	31-10-2013	5.4	5.1	3.2	3.5	3.3	2.3	4.5	3	3.9	3.9
Red Topaz	14-01-2014	5.1	5.1	4.8	5.4	4.9	4.4	6.3	4.4	5.8	5.4
	27-02-2014	4.5	4.7	5	6.1	6.1	4.3	6.7	5	6.1	4.8
HL782	04-12-2013	5.7	5.3	2.9	3.3	2.9	4.8	5.2	3.5	4.3	5.9
	27-02-2014	4.9	4.5	4.3	4.4	4.3	6.2	5.7	5.5	5.6	4.8
Fragance	04-12-2013	5.7	4.8	4.3	4.4	4.2	6.4	5.4	3.9	5.1	6.9
	06-02-2014	5.4	5.4	7	6.5	6.4	7.3	5.7	5.8	7	3.7
Tells 47/05	27-11-2013	7.6	6.4	4.5	4.7	4.2	3.8	5.5	5.5	4.5	4.2
	06-02-2014	5.4	4.2	4	4.4	3.7	5	6.3	4	5.1	6.3
Galant/	27-11-2013	6.6	6.3	5.1	4.3	4.5	4.9	5.8	4.4	4.4	4.6
Tells A931	14-01-2014	7.4	6.4	5.4	2.8	4.3	5.6	6	4.6	4.9	5.4
	06-02-2014	6	6	5.6	2.7	4	5.9	6.1	4.1	5.4	5.9
Maribelle	14-01-2014	6.6	6.6	4.8	4	4.4	6.1	6.1	3.5	5.3	7



HL 782



Fragance

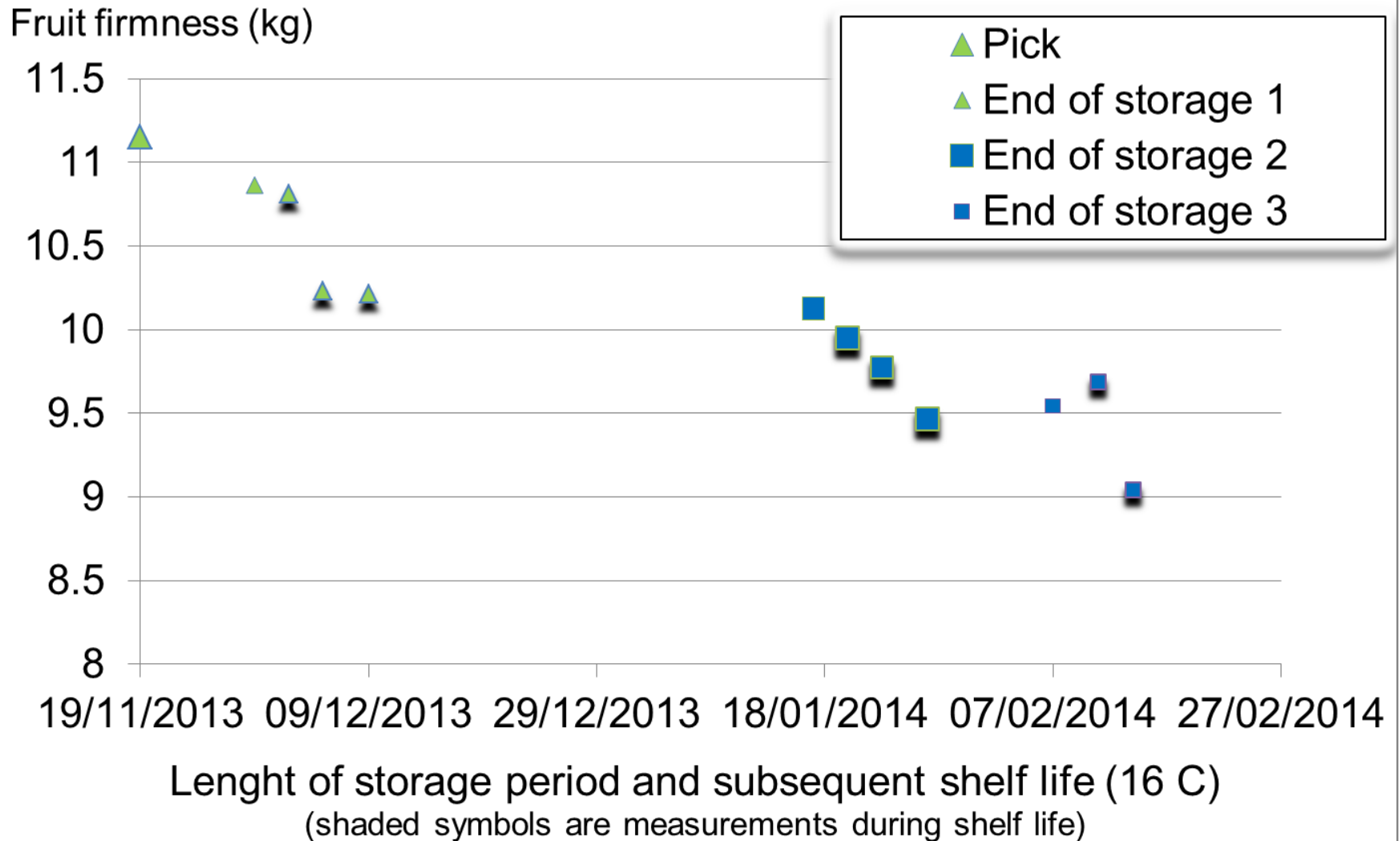


Tells 47/05



Galant/Tells A931

Loss of firmness during storage and shel flife Tells A931 2013/14





- Gala X Akane
- Collaboration between NZ and Japanese breeding institutes.
- Early apple: Late August/medio September
- Good uniform bearing
- Tree with fine growth, many and equal branches.
- Been in testing twice and is robust even under non-sprayed conditions.



