

# Black and red currant cultivar testing in Denmark.

- › Hanne Lindhard Pedersen, HortiAdvice Scandinavia A/S, Hvidkærvej 29, 5250 Odense SV, Denmark.
- › Lillie Andersen, Department of Food Science, Aarhus University, Kirstinebjergvej 10, 5792 Aarslev, Denmark



# Looking for cultivars better suited for organic unsprayed production.



Planted April 2003 at Department of  
Food Science.

One year old plants.

Planting distances 3.5 x 0.5 m  
Plots of 6 bushes, 3 replications

Planted in Mypex

Irrigated the first two years

Manuring, poultry manure  
pellets

Unsprayed



# Black currants

- › Origin, harvest date, yield, berry size for 13 cultivars of black currants in average of 2009-2011.

Black currants	Origin	Harvest	Yield	Berry size
Cultivar	Country	Date	Tonne/ha	G/100 berries
Baldwind	Scotland	7 Aug	3.4 ef	60 e
Ben Alder	Scotland	3 Aug	5.7 bcd	62 e
Ben Avon	Scotland	26 Jul	6.1 bc	81 ab
Ben Dorain	Scotland	27 Jul	4.3 cdef	63 e
Ben Gairn	Scotland	21 Jul	4.1 def	74 cd
<b>Ben Hope</b>	<b>Scotland</b>	<b>1 Aug</b>	<b>7.8 a</b>	<b>74 cd</b>
<b>Ben Lomond</b>	<b>Scotland</b>	<b>2 Aug</b>	<b>8.8 a</b>	<b>84 a</b>
<b>Ben Tirran</b>	<b>Scotland</b>	<b>3 Aug</b>	<b>7.4 ab</b>	<b>76 bc</b>
<b>Narve Viking</b>	<b>Norway</b>	<b>3 Aug</b>	<b>8.9 a</b>	<b>70 d</b>
Tiben	Poland	29 Jul	5.2 cde	77 bc
Titania	Sweden	23 Jul	2.8 fg	76 bc
8944-4	Scotland	23 Jul	1.6 g	50 f
8944-13	Scotland	23 Jul	4.8 cde	63 e

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .



# Black currants

- › Scores for growth, leaf healthiness, infestations of aphids, infections of mildew, rust and leaf spot in 13 cultivars of black currants in average of 2009-2011.

Black currants	Growth, June	Leaf Healthiness, June	Aphids, June	Mildew, June	Rust, August	Leaf Spot, August	Leaf Healthiness, August
Cultivar	Score 1-9 1= no growth	Score 1-9 1= no leaves	Score 1-9 1= no infestation	Score 1-9 1= no infection	Score 1-9 1= no infection	Score 1-9 1= no infection	Score 1-9 1= no leaves
Baldwind	4.8 d	5.5 e	1.7 f	2.8 b	2.8 f	8.2 a	1.8 d
Ben Alder	4.7 d	6.2 d	2.7 bc	1.2 cd	3.9 de	6.4 cd	3.2 c
Ben Avon	6.2 c	6.6 c	3.3 a	1.1 cd	4.4 c	6.0 def	3.5 c
Ben Dorain	4.9 d	5.9 de	2.3 de	1.2 cd	5.1 ab	5.6 f	3.5 c
Ben Gairn	5.1 d	5.7 de	3.0 ab	1.0 d	3.0 f	4.2 g	5.1 a
Ben Hope	6.1 c	6.9 bc	1.7 f	1.0 d	4.7 bc	6.3 cde	3.3 c
Ben Lomond	6.0 c	7.1 abc	2.1 ef	3.1 a	3.5 e	7.3 b	2.1 d
Ben Tirran	5.8 c	6.7 c	2.2 de	1.2 cd	4.4 cd	6.4 cd	3.1 c
Narve Viking	6.4 abc	7.3 ab	2.0 ef	1.0 d	5.5 a	1.7 h	5.2 a
Tiben	6.8 ab	7.5 a	2.9 ab	1.2 cd	2.6 f	6.9 bc	3.4 c
Titania	6.8 a	7.1 abc	2.8 bc	1.0 d	1.0 h	5.7 ef	4.2 b
8944-4	4.8 d	4.8 f	2.5 cd	1.0 d	2.0 g	7.3 b	3.0 c
8944-13	5.9 c	6.9 bc	2.5 cd	1.3 c	2.7 f	6.6 cd	4.1 b

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .



# Black currants

- soluble solids, citric acid and colour content of the juice in 13 cultivars of black currants in average of 2009-2011.

Black currants	Soluble solids	Citric Acid	Colour, Malvidin Chloride
Cultivar	%	Mg/g	Mg/100g
Baldwind	18.0 a	34.6 h	441 g
Ben Alder	16.4 g	36.1 f	691 b
Ben Avon	15.4 i	35.3 g	485 f
Ben Dorain	17.4 b	38.4 c	651 c
Ben Gairn	17.2 c	29.2 k	772 a
Ben Hope	16.8 e	36.3 e	637 c
Ben Lomond	16.6 f	37.6 d	542 e
Ben Tirran	15.8 h	40.6 a	502 f
Narve Viking	15.5 i	29.6 j	638 c
Tiben	17.0 d	40.4 a	640 c
Titania	18.0 a	39.9 b	526 e
8944-4	15.0 j	25.1 l	498 f
8944-13	14.1 k	31.5 i	598 d

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .



# Red Currants

- › Origin, harvest date, yield, berry size, foreign elements in the harvested product in 10 cultivars of red currants in average of 2009-2011.

Red Currants	Origin	Harvest	Yield	Berry size	Foreign elements in the harvested product
Cultivar	Country	Date	Tonne/ha	G/100 berries	Score 1-9 1=nothing
Augustus	Holland	14 Aug	14.4 ab	40 e	5.0 ab
Red Lake	North America	4 Aug	0.8 d	33 f	4.0 d
Red Poll	England	7 Aug	17.3 a	53 cd	5.0 ab
Red Start	England	31 Jul	0.6 d	37 ef	3.8 d
Rolan	Holland	31 Jul	13.0 abc	57 bc	5.0 ab
Random	Holland	4 Aug	10.5 bc	50 d	5.1 a
Roodneus	Holland	7 Aug	15.4 ab	55 bcd	5.1 a
Rosetta	Holland	7 Aug	8.3 c	60 ab	4.6 c
Rovada	Holland	7 Aug	14.5 ab	63 a	4.7 bc
Tatran	Slovakia	9 Aug	12.5 abc	51 cd	5.1 a

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .

# Red currants

- › Scores for growth, leaf healthiness, infestations of aphids and leaf spot in 10 cultivars of red currants in average of 2009-2011.

Red Currants	Growth, June	Leaf Healthiness, June	Aphids, June	Leaf Spot, June	Leaf Spot, August	Leaf Healthiness, August
Cultivar	Score 1-9 1= no growth	Score 1-9 1= no leaves	Score 1-9 1= no infestation	Score 1-9 1= no infection	Score 1-9 1= no infection	Score 1-9 1= no leaves
Augustus	5.4 bc	7.1 cd	1.2 abc	2.3 b	8.6 ab	1.4 de
Red Lake	3.9 e	4.4 g	1.3 abc	3.1 a	.	1.0 e
<b>Red Poll</b>	6.4 a	7.6 ab	1.6 a	1.5 de	<b>6.7 d</b>	<b>3.2 a</b>
Red Start	4.1 e	3.9 h	1.3 abc	2.9 a	.	1.0 e
Rolan	4.7 d	6.7 ef	1.2 bc	1.6 de	8.8 ab	1.7 d
Random	5.6 bc	7.3 bc	1.5 ab	1.8 cd	7.7 c	2.6 bc
<b>Roodneus</b>	6.6 a	8.0 a	1.4 abc	1.6 de	<b>7.1 d</b>	<b>3.0 ab</b>
Rosetta	4.8 d	6.3 f	1.1 c	1.3 e	8.3 bc	2.3 c
Rovada	5.9 b	7.8 a	1.1 c	2.0 c	9.0 a	1.1 e
Tatran	5.2 cd	6.7 de	1.4 abc	1.6 de	8.3 bc	1.8 d

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .

# Red currants

- › soluble solids, citric acid and colour content of the juice in 10 cultivars of red currants in average of 2009-2011.

Red Currants	Soluble solids	Citric Acid	Colour, Malvidin Chloride
Cultivar	%	Mg/g	Mg/100g
Augustus	9.0 j	27.9 b	68 e
Red Lake	10.4 h	25.2 e	67 e
Red Poll	13.2 b	30.2 a	123 a
Red Start	10.3 i	27.7 d	63 f
Rolan	12.6 d	21.4 g	71 c
Random	13.6 a	23.8 f	71 c
Roodneus	12.5 e	27.6 c	122 b
Rosetta	12.1 f	21.0 h	59 g
Rovada	11.4 g	28.2 b	69 d
Tatran	12.7 c	27.5 c	67 e

Numbers followed by the same letter for the same species in columns do not differ significantly for  $P \leq 0.05$ .

# Conclusions

- › The black currant cultivar ‘Narve Viking’ was the best cultivar for organic production. This cultivar had high yield, good juice quality and resistance to pests and diseases. But also the more disease susceptible cultivars ‘Ben Lomond’, ‘Ben Hope’ and ‘Ben Tirran’ had high yields and good juice quality when grown unsprayed.
- › The red currant cultivar ‘Red poll’ had the highest yield, the best juice quality and was most resistant to diseases when grown unsprayed. ‘Roodneus’ also had a high yield and acceptable juice quality and disease resistance.



Narve Viking



BenLomond



Ben Hope



Ben Tirran



Red Poll



Roodneus

# Improving product quality in conventional blackcurrants

## **Materials and methods:**

Planting distance 3.9 X 0.9 m

3-4 replicates

6 bushes per plot

Machine harvest

Ben Lomond as standard cultivar



Name	Origin	Planted year	Harvest Date	T/ha 2008	T/ha 2009	T/ha 2010	T/ha 2011	Average
<b>Planting distance 3.0 x 0.9m</b>								
Ben Lomond	Skotland	2001	2/8	8	17.5	8,0	3.9	9.4 abc *
Ben Alder	Skotland	2001	1/8	10.4	18.5	8.2	1.8	9.7 abc *
Ben Avon	Skotland	2001	29/7	11	19.5	6.7	2.4	9.9 abc *
Almiai	Lithuan	2001	28/7	13.7	18.8	8.2	2.6	10.8 a **
Ben Dorian	Skotland	2001	28/7	2.2	16,0	10,0	3.7	9.6 abc *
Ben Gairn	Skotland	2001	18/7	7.6	5,0	5,0	1.7	4.8 de
Ben Hope	Skotland	2001	1/8	11.1	17.1	8.5	2.4	10.3 ab *
Ben Nare	N/Skotland	2001	21/7	7.2	12.9	3.6	0.3	6.0 bcde
Cacanska	Serbien	2001	28/7	3	2.9	0.4	0.2	1.6 e
Gagatai	Lithuan	2001	25/7	9.2	12.4	6.1	0.8	7.1 abc
Joniniai	Lithuan	2001	25/7	7.4	10.7	3.1	0.4	5.4 cde
Laimiai	Lithuan	2001	25/7	3.2	5.33	5,0	0.3	3.5 de
Vakarjai	Lithuan	2001	1/8	8.1	9.6	6.7	1.1	6.4 abcd
<b>Planting distance 3.0 x 0.9m</b>								
Ben Lomond	Skotland	2002	2/8	9.3	18.2	9.6	5.0	10.5 a *
Titania	Sverige	2002	21/7	7.8	5.4	6.1	0.6	5.0 ab
Ruben	Polen	2002	28/7	6.5	14.8	7.3	2.5	7.8 ab
17/B/1	Polen	2002	28/7	6.9	9.8	5.5	1.0	5.8 ab
Gofert	Polen	2002	18/7	10.3	4.9	7.3	1.0	5.8 ab
Ores	Polen	2002	28/7	8.4	13,0	4.8	1.1	6.8 ab
PC 17	Polen	2002	29/7	12.4	16.8	11.3	1.4	10.4 a **
Pc 425	Polen	2002	28/7	8.5	12.8	5,0	1.0	6.8 ab
Titania	Sverige	2002	25/7	5	2.2	5.4	0.3	3.3 b
<b>Planting distance 3.0 x 0.9m</b>								
Ben Lomond	Skotland	2003	2/8	9	16.5	9.6	3.7	9.7 a *
Narve Viking	Norge	2003	29/7	7	12.2	9.2	3.2	7.9 ab **
N16	Norge	2003	28/7	4.8	7.6	9.9	1.5	6.0 bcde
Tiben	Polen	2003	28/7	9.3	11.7	10.4	1.2	8.1 ab **
Tisel	Polen	2003	18/7	9.7	4.06	10.3	1.7	6.5 abc
Varde Viking	Norge	2003	28/7	6.5	4.9	4.7	1.1	4.3 c
Victor Viking	Norge	2003	28/7	4.2	6.7	4.7	1.0	4.2 c
<b>Planting distance 0.5 x 3.5</b>								
Baldwin	England	2004	1/8	5.1	17.4	10.3	9.2	9.2 abc *
Ben Lomond	Skotland	2004	1/8	7.5	20.4	16.6	12.8	12.8 a *
8944-13	Skotland	2004	21/7	3.3	14.7	7.7	7.7	7.7 abc *
8944-4	Skotland	2004	21/7	3.1	9,0	6.9	5.4	5.4 cde
Ben Connan	Skotland	2004	29/7	7.8	19.2	12.7	10.9	10.9 ab *
Ben Tirran	Skotland	2004	1/8	7.5	15.3	12.2	9.8	9.8 abc *
Noir de Bourgoune	Frankrig	2004	25/7	5.8	11.9	6.7	6.7	6.7 bc

# Recommended cultivar list for planting

Season	Main cultivars	Special cultivars	Test cultivars
<i>Early</i>	Ben Tron		Zusha Tisel
<i>Early/middle</i>	Ben Lomond Ben Connan		Tiben
<i>Middle</i>	Ben Alder		
<i>Late</i>	Ben Tirran	Narve Viking	Ben Hope

In Denmark the cultivars: B. Avon, B. Dorain, B. Starav, B. Klibreck and B. Vane are not available for the growers. B. Finlay is available. Almiai from Lithuania is low in sugar and colour content. PC17 from Poland is interesting for the Danish production.

# Running black currant testing

Name	Origin	Planted	T/ha	T/ha	Brix
		year	2011	2011	2012
Planting distance 0.5 x 3.5					
Abanios	Romania	2009	1.2	0.7	17.8
Ben Lomond	Skotland	2009	1.2	1.2	16.6
Crusader	USA	2009	0.6	0.2	18.5
Dainiai	Lithaun	2009	1.0	4.9	16.1
Deea	Romania	2009	1.4	0.7	14.8
88-124/3	Romania	2009	.	0.3	16.2
Geo	Romania	2009	0.5	0.5	17.3
Intercontinental	Sverige	2009	0.6	1.4	17.3
Marski	Finland	2009	1.3	2.1	13.3
Mikael	Finland	2009	1.4	0.9	16.7
Mortti	Finland	2009	1.2	3.0	16.5
Padina	Romania	2009	0.5	0.2	13.7
Roxix	Romania	2009	1.9	1.0	14.8
Tauriai	Lithaun	2009	2.7	3.6	16.5
Veera	Finland	2009	0.5	0.6	23.3 (Green)
Zusha	Rusland	2009	1.1	2.3	13.2

# Running black currant testing

Ben Lomond

Zusha

Ben Alder

Ben Hope

Ben Gaim

Ben Klibreck

Ben Vane

Ben Finlay

SCRI 9163-5

SCRI 91198-3

SCRI 9443-4

SCRI 9443-6

SCRI 94142-1

SCRI 9956-2

SCRI 9968R-6

Intercontinental

Plantet 2010

Both conventional and  
organic

---

Thank you very much for  
your attention