



NATIONAL INSTITUTE OF AGRICULTURAL BOTANY

BRUSSELS SPROUTS

TASTE TESTING

1993/94

Vegetable Trials Section
on behalf of HDC

BRUSSELS SPROUTS TASTE ASSESSMENTS 1993/94

Project No.: FV 98a

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Introduction

16 Brussels sprout taste panels were carried out over the 1993/94 winter period. The produce was obtained from the three main sites as used in previous years, Biggleswade (BI), Kirton (KI), and Tarleton (TA). Produce was also tested from one organic site at Henry Doubleday Research Association (HD). 39 varieties of sprouts were tested, 36 of which had been tested in previous years. 18 of these varieties were in the 1993 NIAB performance trial, and the remaining 21 varieties were demonstration varieties. Each variety, with the exception of Pantera and Tavernos, was tested at least three times, at least once from each site.

In previous years, tests have been carried out on material from mainly one site. It was considered important to test produce from a range of soil types to determine if the bitterness of varieties relative to one another varies according to where they are grown.

Objective

To assess for bitterness in Brussels Sprouts from varieties listed on the NIAB Descriptive List of Brussels Sprouts and newer varieties currently in trial, from a selected range of soil types. To make this information available to growers and consumers and encourage increased consumption of sprouts.

Method

Sprouts were hand picked and transported to NIAB HQ. They were refrigerated overnight before being prepared for the taste test the following day.

The sprouts were trimmed in the usual domestic manner, put in separate but identical saucepans with just enough water to cover and boiled until cooked but still firm.

Eight varieties were tested on most occasions. The panel members sampled varieties in different orders to eliminate any bias due to "taste bud fatigue". Tap water and cream crackers were provided to cleanse the palate between varieties.

The panel members were taken from a pool of 16, which included both men and women, ranging in age from 20-58. It was not always possible to have the same 6 panel members for each tasting, however there were 6 core panel members and at least 3 of them were present on all but two of the panels.

The sprouts were scored on a 1-5 scale for sweetness, bitterness, flavour and pleasantness. Texture was also scored.

Results

1. Site comparisons

Unlike last year no obvious differences between sites were observed.

The overall mean scores for bitterness were lowest at Biggleswade (2.4), with Kirton having a very similar mean (2.5). Tarleton had the highest overall mean (2.6).

Produce from Tarleton was taken later than from the other two sites, which could account for the higher bitterness scores.

2. Variety Comparisons

a) Consistency of Results

For most varieties there was good consistency of results between the produce tasted from different sites.

The 1993/94 results generally compare very well with the results from previous years for most varieties. However there are exceptions: Philemon and Rasalon both had higher scores for bitterness this year compared with previous trials.

b) Bitterness

Bitterness scores ranged from 1.7 (Adri) to 4.1 (Stephen).

High scores for bitterness were generally found in the later varieties, but overall bitterness scores of above 3.0 were found from mid November in Ilias, Roger and Philemon.

There were 7 varieties which had overall mean scores for bitterness above 3: Ilias, Roger, Philemon, Rampart, Ajax, Stephen, and PSR 889. Of these varieties Ilias, Rampart, Ajax, Stephen and PSR 889 all had one or more taste panel scores of 4.0 or above. With the exception of Ilias all these varieties had been previously tested in 1990-92 period. All varieties had received similar high scores for bitterness, except Philemon.

The 6 varieties with the lowest overall scores for bitterness (below 2) were Oliver, Ottoline, Adri, Prelent, Collette and Billion. These varieties had all been previously tested in the 1990-92 period, and had all received similar low scores for bitterness.

c) Strength of flavour

Mean scores ranged from 2.2 (Stan) to 4.0 (Stephen).

The 5 varieties with the highest scores for flavour (3.5 or above) were: Ilias, Roger, Rampart, Stephen and PSR 889. These varieties also had high scores for bitterness.

The 5 varieties which had the lowest scores for flavour (2.5 or below) were Ottoline, Adeline, Corinth, Lunet and Stan. Ottoline had one of the lowest scores for bitterness.

d) Sweetness

The range in mean sweetness was between 1.4 (Stephen) and 3.1 (Cavalier), as in previous years a smaller range than bitterness and flavour.

The 4 sweetest varieties with scores of 3.0 or above were: Adri, Prelent, Content and Cavalier. All 4 varieties had similar scores for sweetness from the combined data.

There were 11 varieties with sweetness scores below 2: Stephen, Rubine, Ilias, Rampart, Ajax, Ariston, Odette, Rasalon, Tavernos, and Philemon. In the combined data, all 9 varieties previously tested, had similar scores for sweetness.

e) Late Varieties

Looking solely at the late varieties, which were tasted from December onwards, a different range of the least bitter and most sweet varieties is shown.

The 6 least bitter varieties were: Corinth, Sheriff, Stan, Lunet, Adonis and Topaz.

The 5 most sweet varieties were: Corinth, Lunet, Billion, Topaz, and Sheriff.

Hence the 3 varieties from the late produce which were low in bitterness and high in sweetness were Lunet, Sheriff and Topaz.

From the early varieties, the 2 which were both lowest for bitterness and highest for sweetness were Adri and Prelent.

f) Organic Produce

Bitterness tended to be higher in the produce from the organic site than from the other sites. Last year the organic material which was tested also received higher scores for bitterness. However there was only one taste test from the organic site, so it cannot be assumed that the higher scores for bitterness were due to the produce being organic.

Conclusions

- 1) It is possible to detect differences between bitterness in varieties of Brussels Sprouts.
- 2) Good consistency was found between the results in 1993 and those from previous years.
- 3) A high score for bitterness is usually accompanied by a high score for flavour, and a low score for sweetness. Varieties which have high scores for bitterness are usually found to be unpleasant.
- 4) A low score for bitterness is not necessarily accompanied by a high score for sweetness.
- 5) The 5 most bitter varieties from the 1990-1993 combined data are: Ajax, Ilias, Rampart, Roger and Stephen.
- 7) The 6 sweetest varieties from the 1990-1993 combined data are: Adri, Cavalier, Content, Lunet, Prelent and Sheriff.
- 8) From the early varieties the 2 varieties which were low in bitterness and high in sweetness were Adri and Prelent.
- 9) From the late varieties the 3 varieties which were low in bitterness and high in sweetness were Lunet, Sheriff and Topaz.

Future Plans

To continue to check listed varieties and new varieties in trial.

COMPARISON OF 1993 DATA WITH COMBINED 1990-1993 DATA

Figures shown are mean figures

* Varieties tested in 1993 only

Key

Bitterness: 1 = not bitter, 3 = sl. bitter, 5 = v. bitter

Sweetness: 1 = not sweet, 3 = sl. sweet, 5 = v. sweet

Flavour: 1 = weak, 3 = medium, 5 = strong

Pleasantness: 1 = not pleasant 5 = v. pleasant

VARIETY	BITTERNESS		FLAVOUR		SWEETNESS		PLEASANTNESS	
	1993	90-93	1993	90-93	1993	90-93	1993	90-93
ADELINE	2.3	2.2	2.5	2.5	2.2	2.3	2.7	2.7
ADONIS	2.2	2.4	2.8	2.8	2.2	2.0	2.9	2.9
ADRI(7159)	1.7	1.8	2.7	2.7	3.0	2.9	3.2	3.3
AJAX	3.4	3.6	3.3	3.6	1.7	1.6	2.3	2.1
ARISTON(2016)	2.4	2.3	2.8	2.6	1.7	1.9	2.8	2.8
BILLION	1.9	2.0	2.6	2.7	2.6	2.5	3.3	3.3
BJ 1579 *	2.8	2.8	3.1	3.1	2.0	2.0	2.7	2.7
CASCADE	2.3	2.1	2.8	2.7	2.3	2.5	3.2	3.2
CAVALIER	2.2	2.1	2.9	2.9	3.1	3.0	3.2	3.2
CLAUDETTE(PSR389)	2.3	2.0	2.8	2.6	2.3	2.3	2.6	2.8
COLLETTE(PSR689)	1.8	1.8	3.0	2.8	2.6	2.5	3.1	3.1
CONTENT	2.0	2.0	2.8	2.8	3.0	2.9	3.3	3.3
CORINTH	2.0	2.0	2.5	2.5	2.3	2.2	3.1	3.1
DIABLO(BJ 1468)	2.7	2.7	3.3	3.4	2.5	2.4	2.7	2.7
DOLMIC	2.0	2.1	2.6	2.9	2.6	2.5	2.8	3.2
ICARUS	2.5	2.6	3.0	3.1	2.3	2.1	2.6	2.6
ILIAS *	3.5	3.5	3.6	3.6	1.7	1.7	2.2	2.2
LUNET	2.1	1.9	2.5	2.5	2.6	2.8	2.9	3.2
ODETTE	2.7	3.0	3.0	3.2	1.8	1.8	2.6	2.5
OLIVER	1.9	2.0	2.6	2.7	2.8	2.7	2.8	3.0
OTTOLINE	1.9	2.2	2.5	2.6	2.4	2.4	2.8	2.9
PANTERA	2.3	1.9	2.9	2.8	2.3	2.4	2.5	3.0
PATENT	2.3	2.2	2.8	2.9	2.3	2.4	3.3	3.0
PHILEMON	3.3	2.7	3.2	3.1	1.9	2.1	2.4	2.6
PRELENT	1.9	2.1	2.7	2.7	3.0	2.8	3.2	3.3
PSR 889	3.2	3.0	3.5	3.4	2.0	2.0	2.2	2.5
PSR 989	2.8	2.6	3.4	3.2	2.1	2.1	2.4	2.7
RAMPART	3.8	3.7	3.8	3.7	1.7	1.7	2.2	2.1
RASALON	2.9	2.3	3.3	2.9	1.8	2.1	2.4	2.9
RICHARD	2.8	2.8	3.3	3.2	2.1	2.0	2.6	2.6
ROGER	3.4	3.4	3.6	3.6	2.0	1.9	2.2	2.1
RUBINE *	2.7	2.7	3.2	3.2	1.6	1.6	1.9	1.9
SHERIFF	2.0	1.7	2.7	2.3	2.4	2.9	3.3	3.8
STAN	2.0	1.8	2.2	2.2	1.9	2.2	2.6	3.0
STEPHEN	4.1	3.8	4.0	3.8	1.4	1.5	1.7	2.0
TALENT	2.3	2.3	2.9	2.9	2.3	2.2	2.9	3.0
TAVERNOS	2.7	2.5	2.9	2.8	1.8	1.9	2.2	2.6
TOPAZ	2.2	2.3	3.0	3.0	2.6	2.7	3.4	3.4
TOPLINE	2.9	2.5	3.2	3.0	2.0	2.3	2.7	2.9