

Sensory evaluation of fresh, canned and frozen French beans by children

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Objectives

Most children do not eat enough vegetables and one of the reasons is that they claim that they don't like the taste of the products.

While previous research focused on the preparation methods of vegetables, the focus of this study was to examine if the sensory evaluation of French beans by children differs in relation to the storage condition. Moreover, the knowledge and attitude towards vegetables were examined.

AIMS:

- ✓ Determine the influence of storage condition of French beans on children's preference and liking
- ✓ Examine children's vegetable consumption

Materials & methods

PRODUCTS:

French beans:

- Storage condition:
 - fresh
 - frozen
 - canned
- Prepared in a similar way

INSTRUMENTAL ANALYSIS:

Colour: Minolta spectrophotometer CM-508d

CONSUMER TEST (n = 176):

Questionnaire:

- Hedonic liking
 - Appearance, smell and overall liking
 - 5-point hedonic scale
- Ranking overall liking samples
- Vegetables' knowledge and consumption
 - Knowledge:
 - 9 pictures
 - write down correct name
 - Average weekly intake
 - Opinion regarding vegetables:
 - Based upon FCQ (Stephote et al., 1995) and prior research (De Steur et al, 2008)
 - 5-point Likert scale
- Socio-demographic
 - Age
 - Gender
 - Place of living

SET-UP

- 3 different schools
- During regular class hours, in a separate room
- On paper

STATISTICAL ANALYSES:

- One-way ANOVA
- Regression analysis
- IBM SPSS® 22

RESPONDENTS:

- 176 Belgian children
- aged 9 - 13 years
- 55% boys
- 64% countryside / 36% city

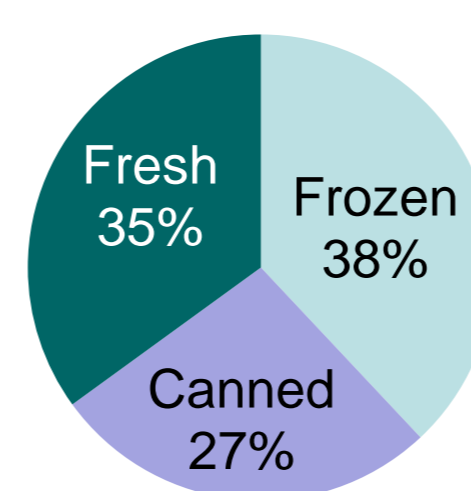
Results

	Liking		
	Fresh	Frozen	Canned
Appearance	2,67 ^a	3,23 ^b	2,08 ^c
Smell	2,32 ^a	2,88 ^b	2,29 ^a
Taste	2,62 ^{a,b}	2,97 ^a	2,47 ^b

*ANOVA with p<0,05

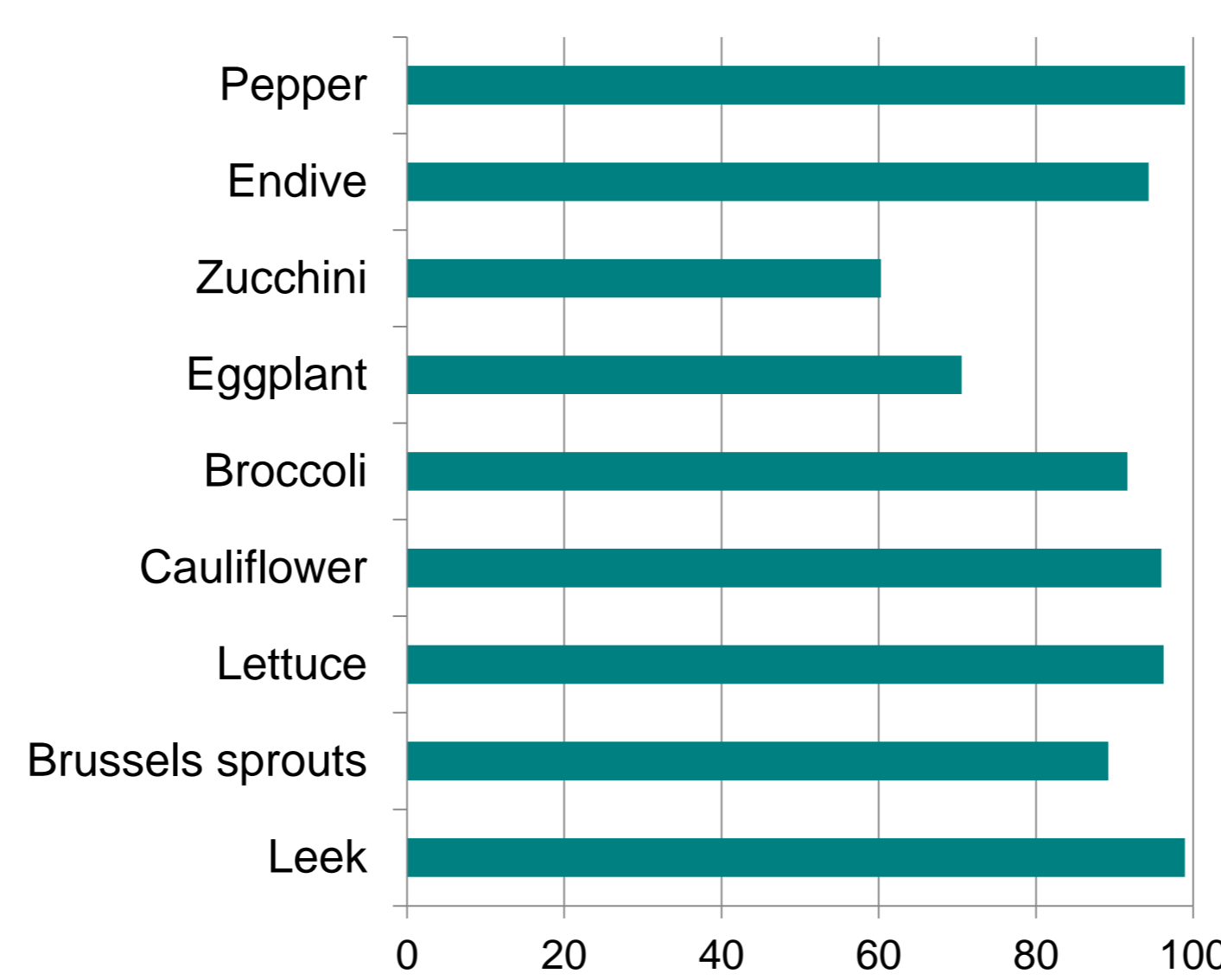
	Colour		
	Fresh	Frozen	Canned
L*	31,75	38,14	29,52
a*	-10,17	-8,03	2,49
b*	28,72	32,28	25,35
WI	68,43	65,82	73,18

Preference (% children)

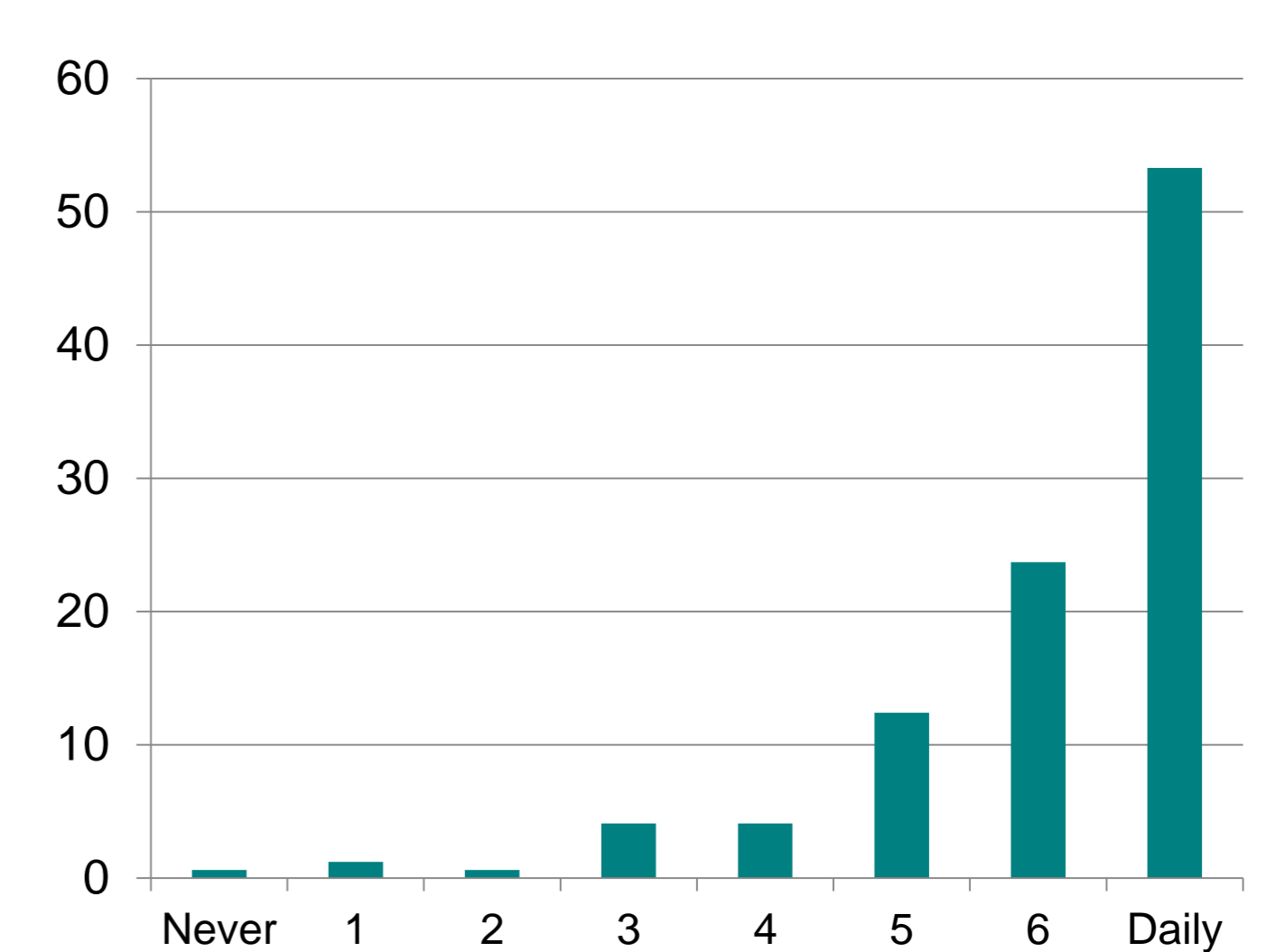


- Fresh and frozen French beans have a more intense green colour compared to canned French beans
- Children prefer green French beans

Vegetables' knowledge (% correct name)

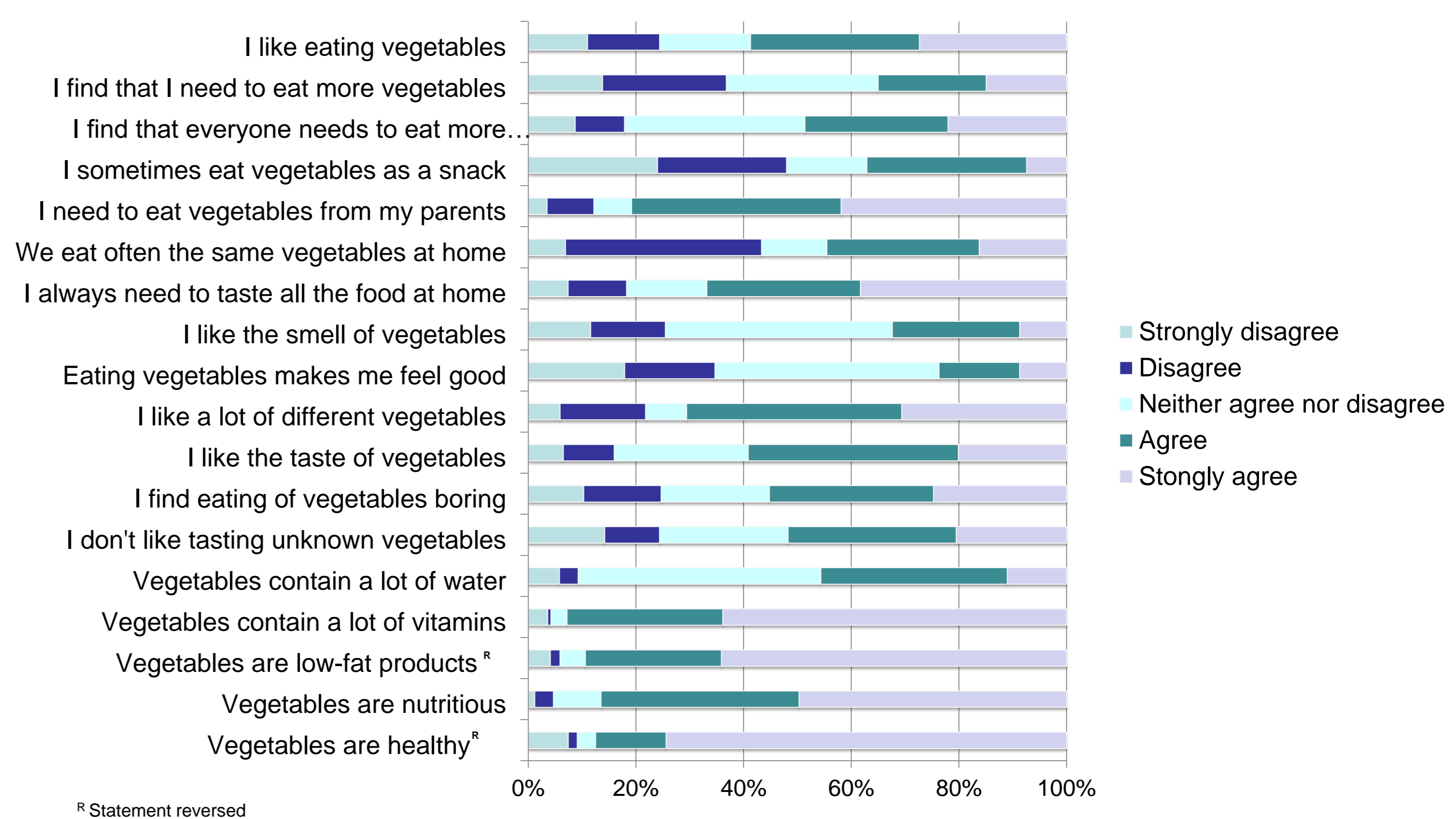


Vegetables' weekly consumption (in days, % children)



- Just over 50% of the children eats vegetables every day
- A higher knowledge of vegetables did not result in a higher appreciation of the French beans' taste

Opinion regarding vegetables



- Most children have a rather positive attitude and belief towards vegetables and they know that vegetables are healthy
- Around 80% of the children likes sensory properties (taste and smell) of vegetables and likes to eat them

Conclusions

This study shows that the overall acceptability and of French beans differ according to the storage condition. There may be an economic advantage in focusing on appearance and colour as children clearly prefer green beans.

Over half of the participants eat vegetables on a daily basis and most children had a rather good knowledge of different types of vegetables. No relation between vegetables' knowledge and overall liking was found which can be due to the rather good knowledge of the children. Most children are aware that vegetables are healthy and have positive beliefs and attitudes towards vegetables.

Future research should examine if liking of other vegetables or even fruit differs for different storage condition. This can offer interesting insights for further scientific research, nutritionist and agencies focusing on a healthy nutrition and food producers.