

Increasing vegetable consumption through foodservice

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ABSTRACT

ADEQUATE VEGETABLE CONSUMPTION IS FUNDAMENTAL TO A HEALTHY BALANCED DIET, HOWEVER, EU COMPLIANCE WITH DIETARY GUIDELINES IS POOR AND FURTHER RESEARCH IS REQUIRED TO OVERCOME CONSUMPTION BARRIERS. THE AIM OF VEGGIEAT IS TO DEVELOP AN EU PLATFORM FOR PREDICTIVE MODELLING OF PROCESSED VEGETABLE INTAKE THAT TAKES INTO ACCOUNT INDIVIDUAL CHARACTERISTICS (ACCEPTABILITY, INTAKE LEVEL, AGE GROUPS) AS WELL AS ENVIRONMENTAL CUES (CHOICE ARCHITECTURE AND INSTITUTIONAL SETTING). THIS AIM WILL BE ACHIEVED THROUGH THE DEVELOPMENT OF CONSUMER-ORIENTED PRODUCTS (SENSORY ANALYSIS); THE DEVELOPMENT OF RECIPES FOR USE BY FOOD PROVIDERS (RESTAURANTS, CANTEENS, ETC.); AND THE BENCHMARKING OF CHOICE ARCHITECTURE FACILITATING THE CONSUMPTION OF VEGETABLES. RESULTS WILL BE GATHERED AND MODELLED TO PROVIDE STRATEGIC INTELLIGENCE FOR DECISION-MAKING (BY FOODSERVICE OPERATORS) AND FOR POLICY PURPOSES (BY THE EU). THIS PAPER DESCRIBES THE FIRST STAGE OF SENSORY ANALYSIS AND CONSUMER CHARACTERISTICS OF CONSUMPTION IN FRANCE AND THE UK.

Keywords: vegetables, sensory, consumer, recipes, foodservice

Theme: Sectoral Futures

RATIONALE

Although, healthier catering initiatives have been developed, robust evaluation of how these inform, widen or restrict consumer choice and hence effect consumer behaviour change have not been explored (Bagwell, 2014) and have not been considered within the debate of eating out. Previous interventions have focused mostly on increasing consumer knowledge on the benefits of improved food choice based on the assumption that better information would lead to healthier choices (Hoefkens et al, 2011). Numerous factors, usually overlooked, may play a more important role in the choice and intake of food other than simple information. A better acknowledgement of these factors is needed in order to improve the efficiency of public health policies. Foodservice can contribute in a significant way to a more holistic development of improved public health. In fact, this comes as a necessity, as the disease burden associated with poor food choice is becoming increasingly important in societies across Europe, and sustainable improved food habits need to be considered to maximize both social and economic benefits.

By promoting the shift towards a healthy and sustainable diet through consumer exposure and innovation in the food industry, **VeggiEAT (www.veggieat.eu)** addresses European and global societal public health challenges. An increased consumption of vegetables could reduce, at population level, the risk of obesity, hypertension, coronary heart disease (CHD) and Type 2 Diabetes (WHO, 2007).

METHODOLOGY

The objective of this study in WP2 is to evaluate the sensory characteristics of the vegetables that would influence its choice by different age groups. From a knowledge perspective we will be able to better understand consumer perception of the product sensory variations according to their characteristics (i.e. age, gender, nationality) and therefore make recommendations for foodservice menu design.

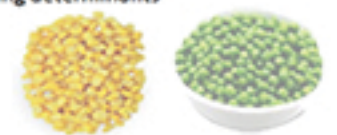
In June 2014, children over 12years (n=100) and older people over 65years (n=100) in France and the UK were invited to taste samples of peas and sweet corn. These two vegetables were selected because peas are a familiar and well liked vegetable whereas sweet corn is less so and in fact in France is considered by older people only suitable as chicken food. Notwithstanding from a nutritional perspective as a food it has merits, it is high in fibre and low in fat while relatively inexpensive to purchase.

Subjects were first exposed to an acceptability liking test for the two samples and then asked to perform a labelling free sorting task where perceived similarities and differences among the samples can be noted. A questionnaire was administered to determine demographic and individual characterisation of food consumption.

PRELIMINARY RESULTS

Results will lead to strategic guidance for foodservice operators regarding the sensory properties required to enhance dishes through including vegetables. Data will be presented at the conference according to the themes of sensory drivers and the relationship to eating behaviour and attitude

LIKING	<ul style="list-style-type: none"> Mean liking score for peas are significantly higher than for sweet corn (respectively 5.5±2.8 and 5.2±2.7) ALSO familiarity (i.e. frequency of consumption) is significantly higher for peas (p=0.005) ∇ Familiarity = ∇ liking
	<ul style="list-style-type: none"> Teenagers have significant preferences among the varieties of peas and sweet corn (p<0.0001 for both veg) and PCA revealed existence of two main subject clusters for both vegetables: <u>Peas:</u> Cluster 1 (n=51) prefer juicer peas while cluster 4 (n=45) prefer dryer ones <u>Sweet corn:</u> Cluster 1 (n=45) reject toughness and Cluster 4 reject (n=35) bitterness and astringency
SORTING	<ul style="list-style-type: none"> Teenagers were able to discriminate the sensory properties variability for peas and in less extent for sweet corn
	<ul style="list-style-type: none"> Liking, appearance, taste and texture were the main sorting determinants



DISCUSSION

Given the high costs of obesity and comorbidities in terms of health care expenditure and quality of life, prevention strategies are paramount. In Western Europe obesity has risen by 9-15% in the last 10 years and where a correlation has been made between eating out and this data (Benelam, 2009). The positive association between the rise in consumption of food prepared outside the home and the increasing prevalence of obesity is a major health and wellbeing societal challenge. Processed vegetables, namely, canned and frozen, constitute a way for Europeans to meet affordably their dietary needs and at the same time provide a food source which is low in saturated fat and calories. In particular, canned and frozen varieties of vegetables provide a convenient way to promote intake, have a shelf life longer than their fresh counterpart and are ready to eat and easy to use in meal preparation. These features make them valuable alternatives for busy and cost-conscious consumers as well as useful commodities for chefs. Furthermore, canned and frozen vegetables offer virtually the same nutrition as fresh, with the advantage of facilitating accessibility, storage and food safety disparities.

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ACKNOWLEDGEMENTS

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612326.