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POTENTIAL OF USE OF GOOSEBERRIES, CURRANTS AND THEIR HYBRIDS AS TABLE FRUITS IN THE MARKET NETWORK OF THE CZECH REPUBLIC

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Abstract. An interest of customers in berry fruits – gooseberries, currants and their hybrids was examined in the framework of the project “Investigation of new technologies in growing gooseberries and currants with focus on quality and use of fruits” by questionnaire and presentation with degustation. This survey was carried out in June and July 2011 in four shopping centres with 500 respondents. Gooseberry and currant have traditionally been a popular Czech fruit. In the past, these species were grown mostly in home gardens and fruits were used for procession. Commercial production and sales of table fruits were relatively rare. The general part of our research was aimed at complex tendencies and preferences of consumers during their shopping and subsequent use of fruits and further at species composition. Totally 93.4 % of respondents buy fruits for direct consumption. Gooseberries (65.5%) as the second and currants (black 37.0 %, red 36.1 %) as the third followed strawberries, which are in the first place concerning preferences and interest of consumers in berry fruits. Consumers displayed smaller interest in white currant and hybrids of currant with gooseberry. Plastic trays (79.8 % of respondents) with content weight from 200 to 300 g (67 %) and from 301 to 600 g (25 %) were evaluated as optimal retail packaging. The survey has also shown interest of consumers (44.5 %) in off-season purchase of gooseberries and currants.

Key words: Berry fruits; Questionnaire; Demand; Consumers; Czech Republic

INTRODUCTION

There is a strong tradition of growing and consumption of temperate berry crops including currant and gooseberry in the Czech Republic (Luža, J. et al. 1967). This group of fruits was historically grown mostly for the processing industry. In the course of time, this role has changed and nowadays consumers more often prefer berry fruits for direct consumption. At present, Amelanchier (serviceberry), chokeberry, strawberry, gooseberry, sea-buckthorn, highbush blueberry, currant, rowan, elderberry, raspberry and blackberry are commercially grown in the Czech Republic. Mainly strawberry, raspberry, blackberry, highbush blueberry, less frequently currant, cranberry and gooseberry appear on the shelves of supermarkets as table fruits.

These fruits are from Czech growers or imported (mostly out of season). The lack of gooseberry plantations for market saturation is one of the main problems. Only 1.5 t of gooseberries were harvested from commercial plantations in 2012 (Buchtová, I. 2012). Gooseberry is primarily grown in home gardens for self-supply.

The aim of the research was to determine consumer interest in table fruits such as currant, gooseberry and their hybrids in order to support their growing and marketing. Fruit growing industry in the Czech Republic struggles with a rapid decrease of currant and gooseberry harvest mainly due to former focus on the processing industry. In 1995, a total of 10 413 t of gooseberries were harvested. In 2011, it was only 3653 t. In the case of currant, it was 22 074 t in 1995 and only 1 672 t in 2011 (www.faostat.fao.org). Hričovský, I. et. al. (2002) stated the average consumption of gooseberry of 0.4 kg annually in 2002.

MATERIAL AND METHODS

One of the objectives of the project QI 111A141 was to determine consumer interest in table fruits of currant, gooseberry and their hybrids. The assessment of related sale price, type of package including product weight and further supplementary questions were also parts of the project. The interest of buyers in the mentioned crops was investigated within selected supermarket chains from the 27th of June to 22nd of July 2011. It was possible to offer harvested fruits to consumers in the early morning at the beginning of opening hours.

The presentation for consumers consisted not only in the demonstration of species and cultivars, but also in the degustation. This all caused an increased interest in this no-sale questionnaire action.

Ripe fruits of currants, gooseberries and their hybrids from available cultivars were obtained from the plantations of the Central Institute for Supervising and Testing in Agriculture, from the testing station Želešice and from the Breeding Station Velké Losiny.

Data collection was carried out with the help of questionnaires in the selected supermarket chains (Tesco Stores ČR, a.s. Brno Cimburkova, Tesco Stores ČR, a.s. Brno, Dornych, Spar Česká obchodní společnost s.r.o. Brno Cejl, Kaufland, Brno, Sportovní) during the harvest of 2011. The results of questionnaires were processed in the system ReLA (umbrella.mendelu.cz). Data were subsequently exported to programme MS Excel, adjusted and encoded. Data analyses were carried out by Statistica 10.0 programme. All data were processed in frequency tables:

· absolute frequency: $\sum_{i=1}^k n_i = n$, n_i is number of values in category

· relative frequency: $p_i = \frac{n_i}{n}$, applies to $\sum_{i=1}^k p_i = 1$.

RESULTS AND DISCUSSIONS

Based on the results of questionnaire, apples (94.3 %) are the most popular fruits, followed by bananas (84.7 %), peaches (58.2 %), pears and strawberries (both 55.5 %) and oranges (51.6 %). Other fruit species reached less than 50 % of popularity. The order according to their popularity is as follows: lemons, apricots, mandarins, sweet cherries, currants, plums, sour cherries, gooseberries, kiwi, raspberries, blackberries, grapefruits, mango and avocado.

During fruit selection, consumers are mostly influenced by the quality of offered fruits (93.1 %) and by health and nutritional benefits (91.2 %). Valuable antioxidant properties of black currant are documented by Anisimoviene et al. (2009) or of gooseberry by Pantelidis et al. (2007). Consumers' experiences with fruit (88.5 %) are on the third place, followed by their price (85.5 %). Package and advertisement have smaller influence. Respondents further spontaneously added the taste of a given fruit, its appearance, freshness, ripeness, colour, and flower.

Consumption of fresh fruits (Figure 1) is a part of daily diet of most consumers (68.3 %). Less than 4 % of respondents consume fruits less frequently than once a week.

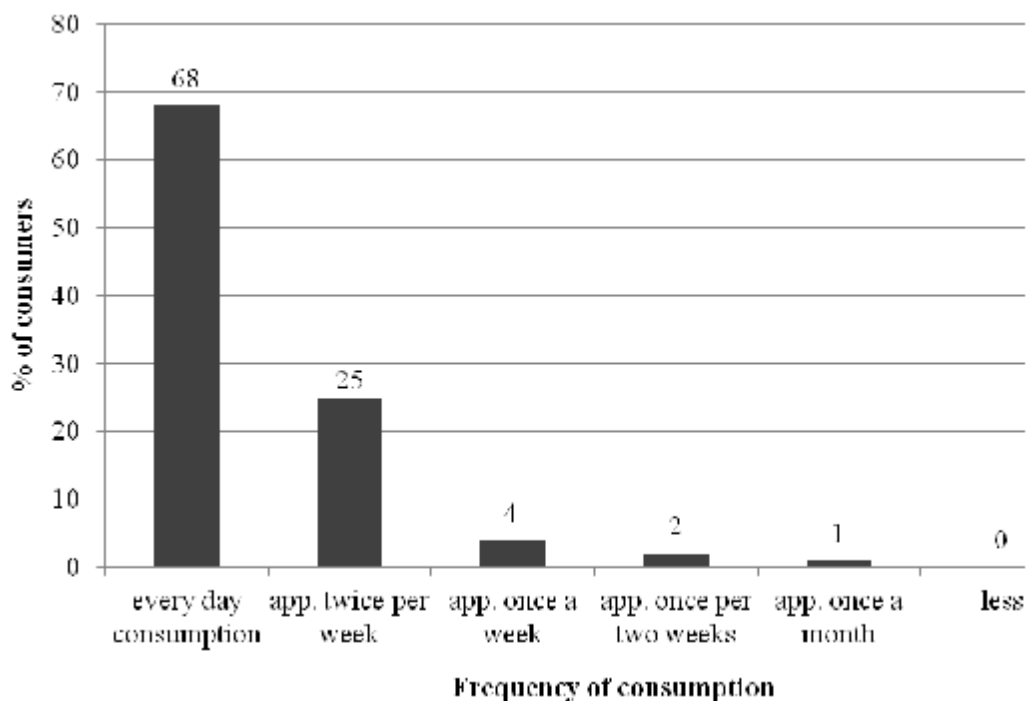


Figure 1. Frequency of fresh fruit consumption

Also other factors influence the amount of purchased fruits. For example holidays, Easter and Christmas represent a motivation to buy more fruits for 63.1 % of respondents. Gooseberry got more popularity - 65.6 % than currant among consumers (Figure 2). As for the colourfulness, 37.7% of respondents like black and almost the same amount 36.1 % like red currant.

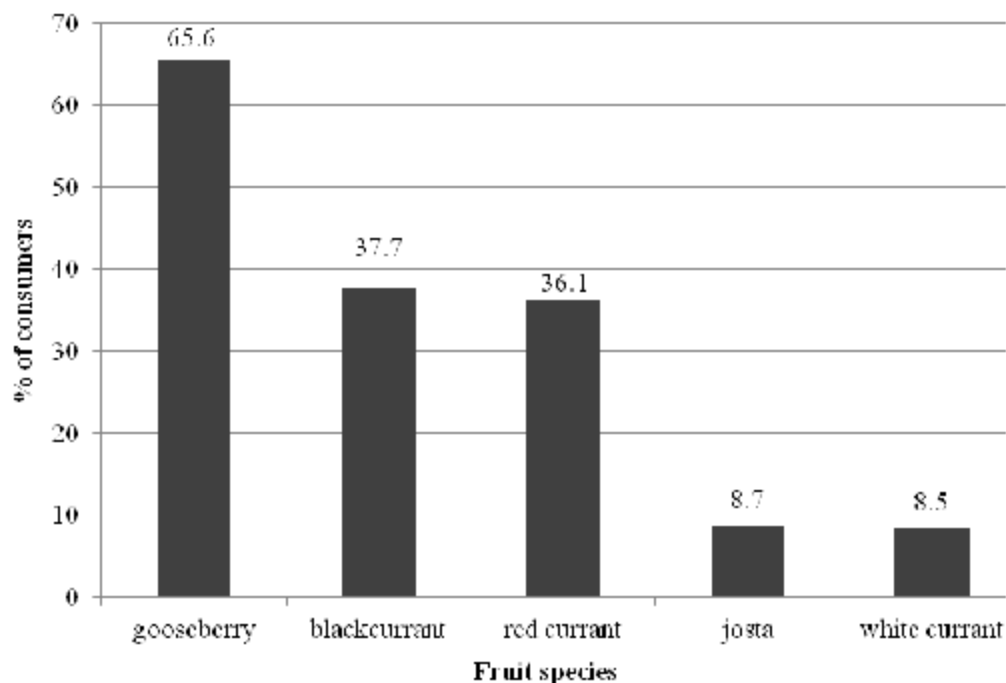


Figure 2. Preferred species of surveyed berry fruit

As for the determination of suitable package, the respondents unambiguously supported plastic trays (79.8 %), and also the chip baskets (16.1 %) for larger amounts of fruits. The biggest interest was in the package size 201 – 300 g (66.7 %). Buyers are willing to pay from 11 to 20 CZK for this amount of fruits. Bigger package, from 301 to 600 g, was requested by 24.9 % of respondents. The package size from 601 to 1000 g did not arise almost any interest of buyers.

Respondents were mostly satisfied with average-sized fruits (71.6 % of respondents). Only 24.3 % requested bigger sized fruits. Fresh and not deteriorating state is the essential condition for fruit preservation.

Red gooseberries were more attractive for 31.1 % of respondents and yellow for 27.3 %. The least interest (16.7%) was in green fruits. There was a considerable amount of respondents without preference for colour of fruits.

Most of the respondents (93.4%) use berry fruits for fresh consumption. The minority group 34.4 % uses berry fruits for processing in the kitchen (Figure 3).

Most respondents stated that they buy fruits mostly in department stores, supermarkets, hypermarkets (73.5%), to a lesser extent directly from growers (19.4%), and the least from specialized fruit and vegetable shops (3.3%).

Most respondents (68.8%) are not satisfied with the offer of fresh currant and gooseberry fruits. Out of summer season, table gooseberry is almost unavailable on the domestic market. Imports from southern hemisphere are minimal (Hincksman, M. and Fernando, N. 2011).

On the territory of the Czech Republic, two and half months is the supposed period of possible market supply with different gooseberry and currant cultivars from different growing altitudes. The season can be extended by approximately one month in the case of forcing under plastic tunnels. Further 5-week extension can be expected with the use of controlled atmosphere (Blažek, J. et al. 1998).

The last question was aimed at the possibility to offer berry fruits out of the main season i.e. during autumn, winter and spring. 44.5% of respondents showed interest in this offer and 48.1 % of respondents were willing to pay from 11 to 20 % more for these out of season fruits.

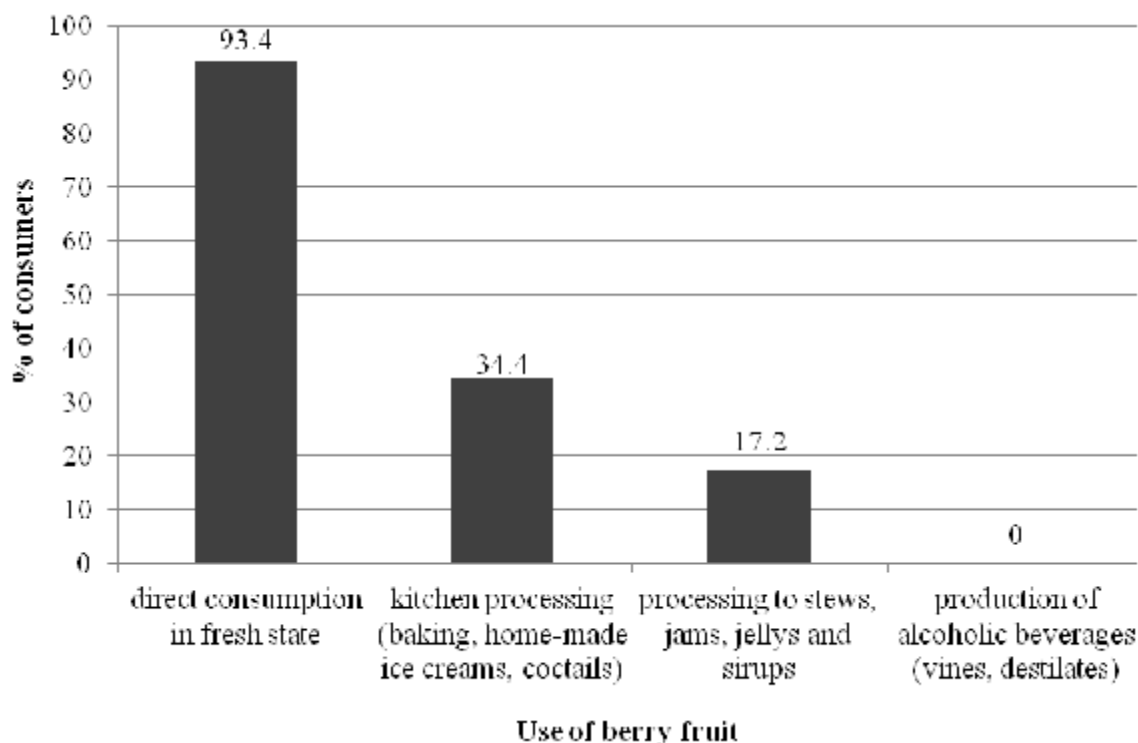


Figure 3. Use of purchased berry fruits by consumers

CONCLUSIONS

In most cases, the respondents included in this survey expressed a positive attitude and interest in the investigated group of berry fruits. It mostly concerns fresh consumption. Minority was interested in processing. From the point of view of growing technologies and cultivar selection, the average size of berries and red and yellow colour in the case of gooseberries are the most requested. Relatively small group of respondents expressed interest in hybrids of gooseberry and currant. A big part of respondents is not satisfied with the current offer of table currant and gooseberry on the market. The package weight of 200-300 g and plastic trays are requested by buyers.

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