

A photograph of a raspberry field with rows of plants and a dirt path. The plants are green and appear to be in a field with a dirt path running through the center. The background shows a line of trees under a bright sky.

# **THE RASPBERRY INDUSTRY IN SERBIA**

**Chile 2010**

# RASPBERRY

Serbian Red Raspberries are prized for their color, flavor and firmness.

CARBOHYDRATES

ANTIOXIDANTS

ORGANIC ACIDS

VITAMIN C

ANTHOCYANINS

ELAGIC ACID

# PRESENT SITUATION



- With last year production of 70 000 t, the Republic of Serbia is one of the major world producer and exporter of raspberries.
- In Serbia, raspberry is grown on 15,500 ha.
- About 90% of produced quantity is frozen and exported, and the remainder is sold as fresh fruit or is processed into other products.
- Raspberry fruits are of strategic importance for the Serbian economy.

<b>Year</b>	<b>Area (ha)</b>	<b>Production (t)</b>
<b>2000</b>	<b>13.140</b>	<b>63.796</b>
<b>2001</b>	<b>14.756</b>	<b>77.781</b>
<b>2002</b>	<b>15.036</b>	<b>94.350</b>
<b>2003</b>	<b>15.354</b>	<b>69.554</b>
<b>2004</b>	<b>15.495</b>	<b>62.580</b>
<b>2005</b>	<b>15.413</b>	<b>84.309</b>
<b>2006</b>	<b>15.450</b>	<b>72.650</b>
<b>2007</b>	<b>15.500</b>	<b>65.000</b>
<b>2008</b>	<b>15.500</b>	<b>59.000</b>
<b>2009</b>	<b>15.500</b>	<b>65.000</b>
<b>2010</b>	<b>15.550</b>	<b>70.000</b>

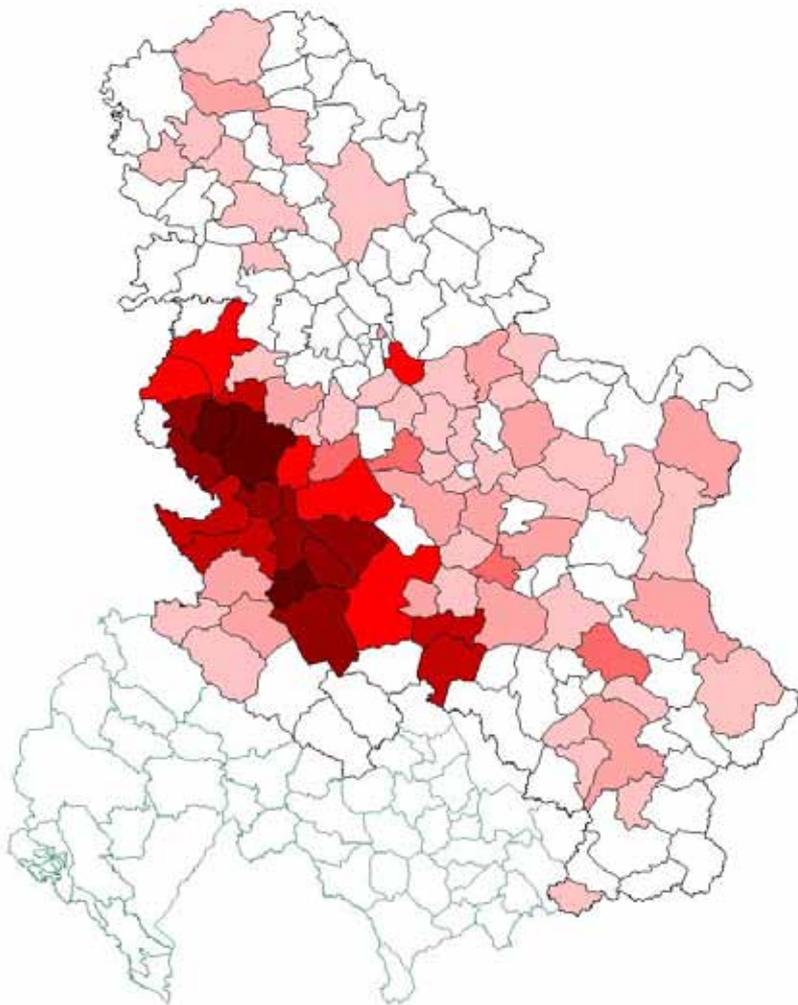
# Price for fresh raspberries in last 5 years EUR/KG

<b>Year</b>	<b>Price EUR/KG</b>	<b>Production (t)</b>
<b>2005</b>	<b>1-1,2</b>	<b>84.309</b>
<b>2006</b>	<b>0,9-1,3</b>	<b>72.650</b>
<b>2007</b>	<b>1,2-1,4</b>	<b>65.000</b>
<b>2008</b>	<b>1,9-2,2</b>	<b>59.000</b>
<b>2009</b>	<b>1,5-1,7</b>	<b>65.000</b>
<b>2010</b>	<b>1,4-1,6</b>	<b>70.000</b>

**Raspberry growing is mostly concentrated in the hilly-mountainous area of the Republic of Serbia**



# Average farm size 0,5-1 ha



Municipality/City	1995	2005	INDEX
Osečina	989	1,220	123.4%
Ivanjica	248	1,114	449.2%
Valjevo	1,059	1,003	94.7%
Brus	588	984	167.3%
Lučani	420	951	226.4%
Krupanj	599	869	145.1%
Arilje	514	760	147.9%
Ljubovija	597	700	117.3%
Kosjerić	295	660	223.7%
Aleksandrovac	535	621	116.1%
Požega	351	546	155.6%
Čačak	364	443	121.7%
Užice	158	436	275.9%
Šabac	208	377	181.3%
Gornji Milanovac	381	344	90.3%
Koceljeva	320	293	91.6%
Grocka	259	216	83.4%
Mionica	200	130	65.0%



**Owing to the fact that raspberry is grown on the individual holdings and on smaller areas, maximum yields per unit area in the Republic of Serbia are by 4 times higher than the average ones.**

**About 90% of harvested fruit is frozen and placed on world markets as three major products: IQF raspberry whole, IQF raspberry crumble & IQF raspberry block.**

# CULTIVARS



The cultivar *Willamette* has the greatest share in raspberry varietal structure (over 90 %)





## Meeker

Over past decade the share of cv. *Meeker* has been increased in the regions suitable for raspberry growing



## ***Cv Tulameen***

**Is newly introduced red raspberry cultivar with excellent fruit quality.**

**It is mainly used for fresh market.**



# PRIMOCANE RED RASPBERRY CULTIVARS

*Polana*



*Autumn Bliss*



*Heritage*



There are few plantings with primocane fruiting raspberry cultivars and they are introduced into the production at slow rate.



## **System of two wire vertical trellis**

**Vertical trellis system is formed with 2 m high posts and two lines of single wire to which canes are fastened.**

**Meeker and Tulameen cultivars require additional support because their fruitfull branches can grow to over 1m. They are extremely tender and often break due to the fruit load.**

# Soil cultivation - dominant



# Mulch application in raspberry planting





**In Serbia, only 3-5 % of areas planted with raspberry are irrigated. The most common irrigation method is “drip “ system.**

**Genetic  
potential  
of cultivars**

**Agricultural  
methods**

**Biotechnol  
ogical  
methods**

**INTEGRATED  
RASPBERRY  
PRODUCTION**

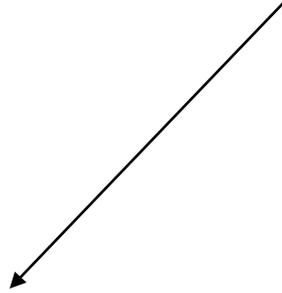
**Minimal pesticides  
application**



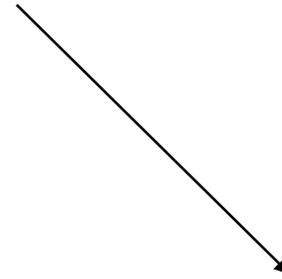
# Organic Raspberry Production in Serbia

Year	Plot	Growers (number)	Area (ha)	Production (t)
1999	53	53	11,7	108
2000	62	62	12,3	187,8
2001	281	220	54,19	478,6
2002	670	539	102,07	739,1
2003	708	551	125,11	875
2007	940	640	160	1200
2008	1053	720	184	1387
2009	1189	796	214	1590
2010	1197	804	221	1.654

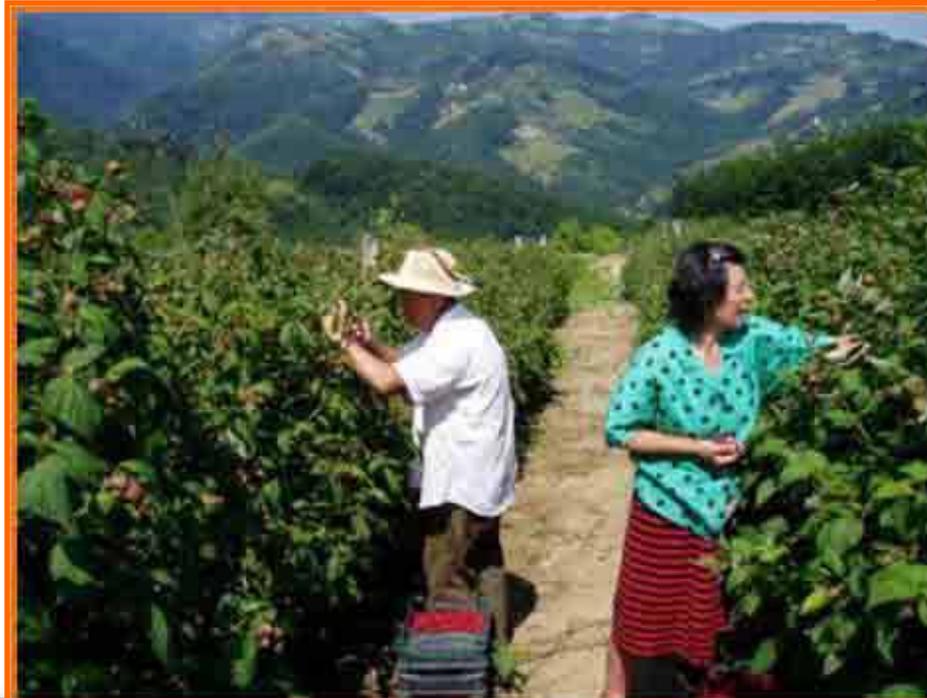
# HARVESTING MODES



**Mechanized raspberry harvesting**



**Manual raspberry harvesting**



Harvesting is mostly manual and almost all raspberries are harvested into shallow open crates, no more than 2 kg each.





**Presently, there are only 4 self propelled machines produced in USA for raspberry harvesting in whole Serbia.**

**There is also 1 domestic producer that still develops machine.**

**The difficult merging of areas necessary for mechanized harvesting is one of the largest problems.**





The price of mechanized harvesting is much lower, the quality is satisfactory and the losses are negligible.





# COLD STORAGE

**There are over two hundred cold storages with deep freezing regime (- 18 C), 100 – 5.000 t capacity.**

**To most of them raspberries are main products.**

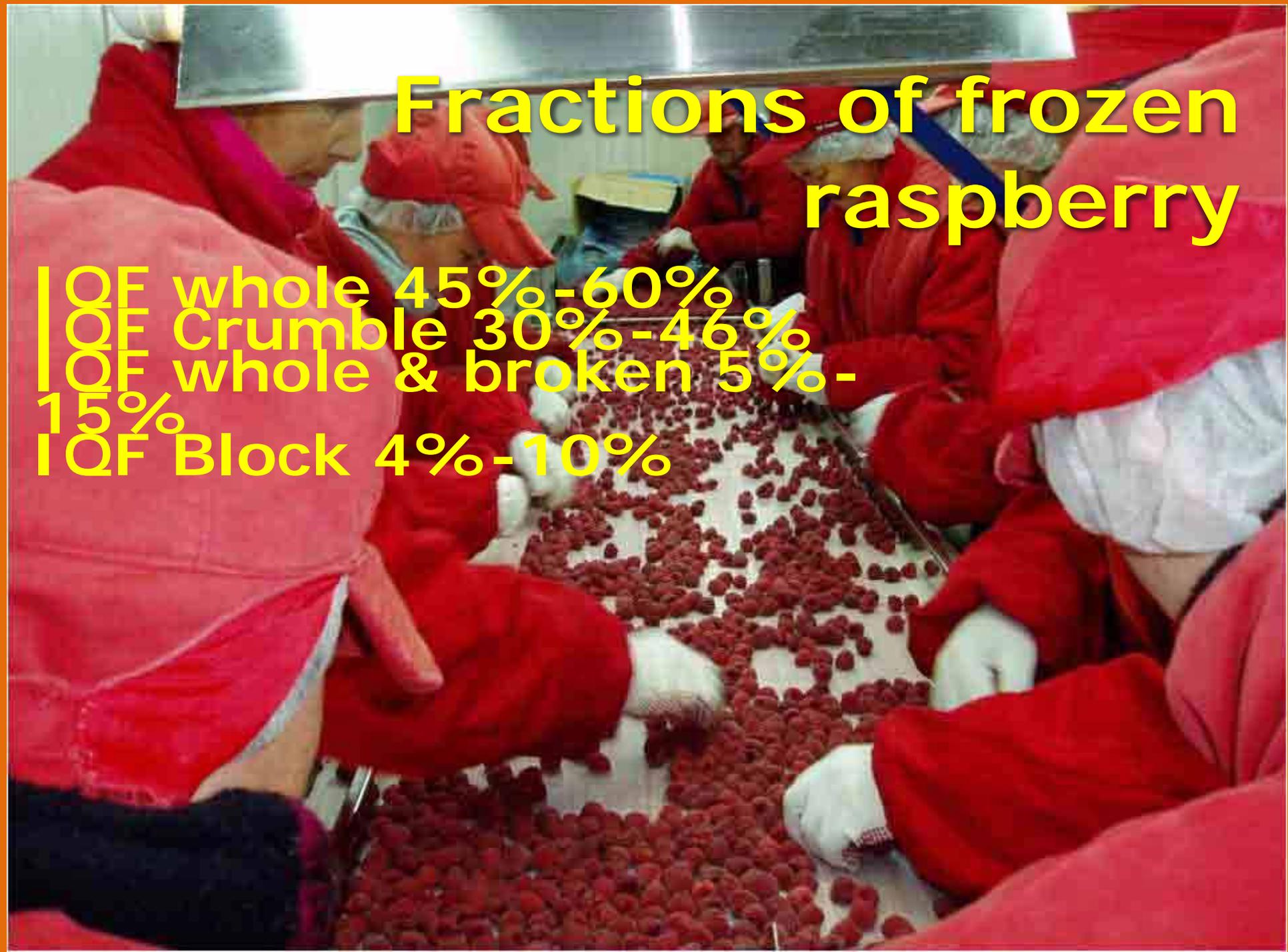


# Typical cold store



A photograph showing several workers in a food processing facility. They are wearing red protective suits, red hairnets, and white gloves. They are working on a conveyor belt that is filled with raspberries. The workers are focused on their tasks, and the environment appears clean and professional. The text is overlaid on the left side of the image.

**In order to improve frozen fruit quality, attention should be paid to: cultivar selection, production and harvest modes, transportation of fruits to cold stores.**



# Fractions of frozen raspberry

IQF whole 45%-60%  
IQF Crumble 30%-46%  
IQF whole & broken 5%-15%  
IQF Block 4%-10%



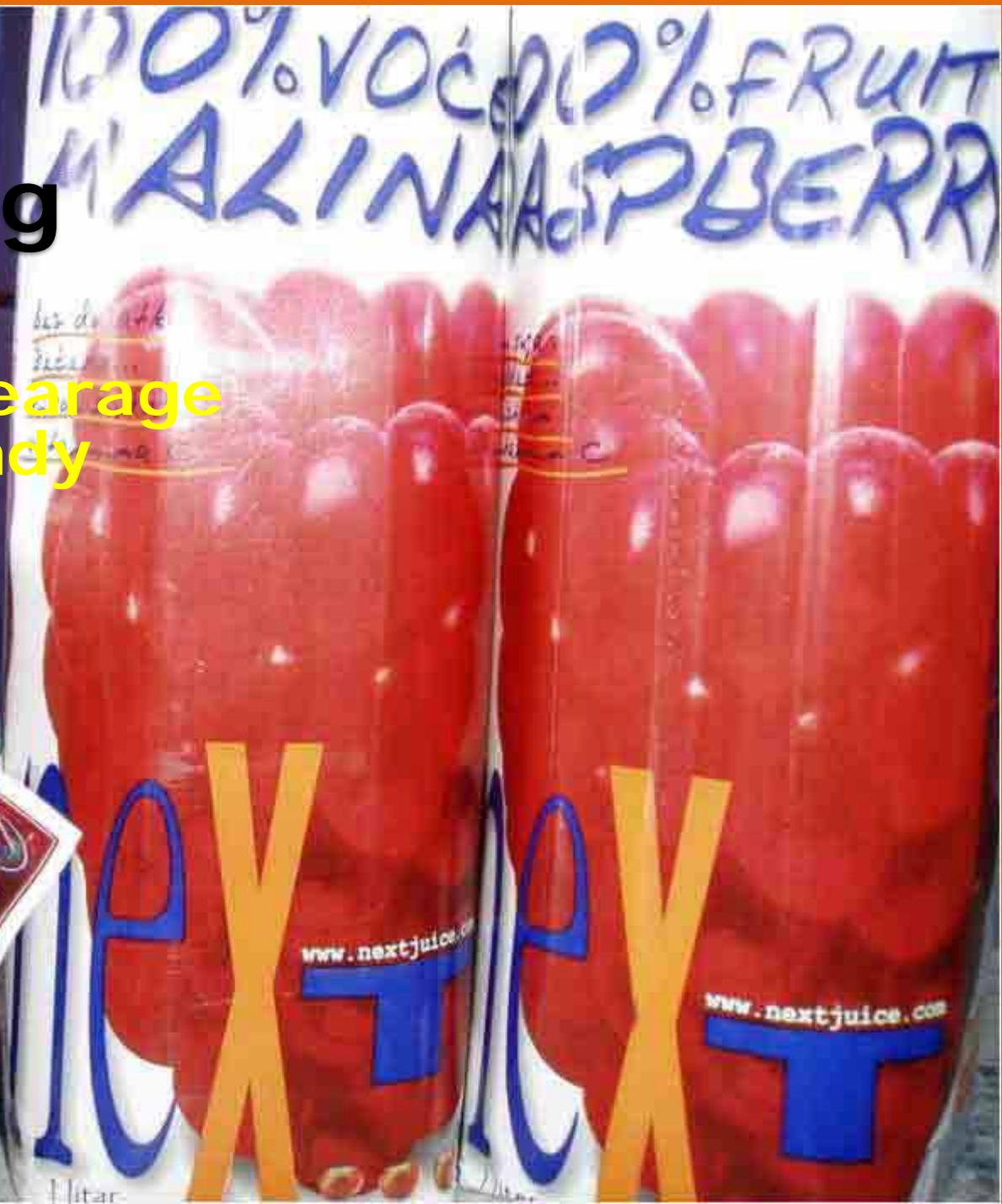
**IQF Raspberry whole**



**IQF Raspberry crumble**

# Other forms of processing

Dried  
Concetrated  
Juices and bevearage  
Raspberry brandy



# PRODUCTION STRATEGY

- increasing production pursuing high quality
- introduction of new cultivars suitable for fresh consumption
- exclusive use of certified planting material for establishing plantings
- growing raspberry out of season in tunnels
- creating recognizable brands
- improving design and quality of packaging
- harvesting technology
- permanent education of agricultural producers

# Small packages for fresh market



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- **Raspberry is one of the most profitable exported article of Serbian agriculture .**
  - **In order to maintain leading position in raspberry production and export worldwide, growing technology and quality control should be improved.**
  - **Development of processing industry, increase number of forms of processing, attractive packaging and brands are the priorities of the realization of the production.**

# Thank you

**IRO Chile 2010**

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