

MODERN CHALLENGES OF THE STRAWBERRY PRODUCTION

Boris DURALIJA

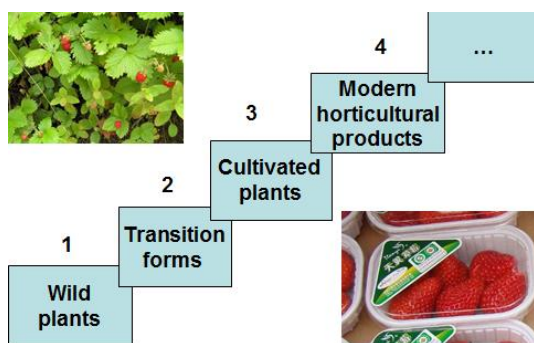


Modern challenges of the strawberry production

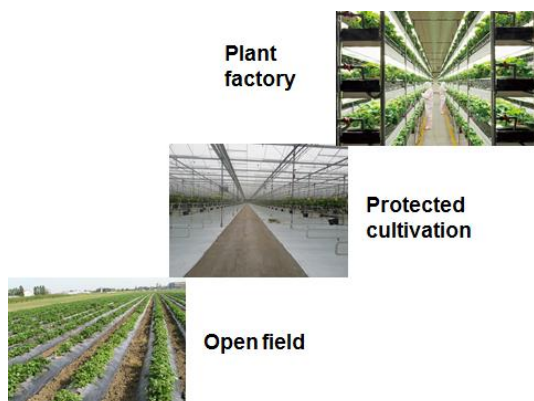


Boris Duralija
Department of Pomology, Faculty of Agriculture,
University of Zagreb, Croatia
E-mail: bduralija@agr.hr

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4 main steps in strawberry consumption



Sustainability

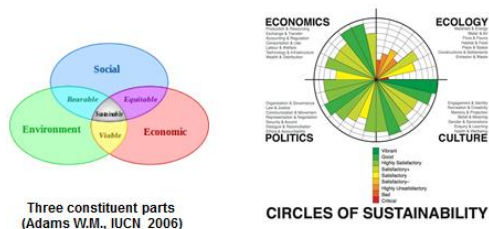
Food security



Food safety

Profitability

Sustainability - sustainable production of strawberries



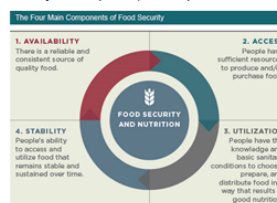
Three constituent parts
(Adams V.M., IUCN 2006)

CIRCLES OF SUSTAINABILITY

Sustainability approach distinguishes the four domains of economic, ecological, political and cultural sustainability

Food security - is related to the supply of strawberries

The final report of the 1996 World Food Summit states that food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996).

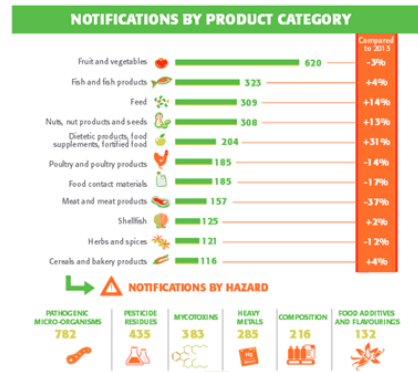


Food safety – safe strawberries for consumers

It is a scientific discipline describing handling, preparation, and storage of food in ways that prevent food borne illness.



Ensuring food is safe along the entire food chain is a major concern in our modern societies, where products sometimes cross several borders before reaching the end consumer.



The Basic Principles of Good Agricultural Practices (GAPs):

1. The best way to prevent corrective action by state and federal governments is to **prevent microbial contamination** of fresh strawberries.
2. Use GAPs. To minimize microbial food safety hazards in strawberries, growers should use the GAPs outlined in this program and apply them to the areas of their operation over which they have **control**, such as **sources of water, field sanitation, worker hygiene standards, etc.** Managing and predicting potential sources of contamination is an essential step in producing a safe strawberry.
3. **Anything that comes into contact with strawberries has the potential to infect.** The source and quality of each contact dictates the potential for contamination. Water (used for irrigation and pesticide mixing) is a primary source of contamination.
4. **All pesticides must only be used in strict accordance with manufacturer recommendations.** Pesticides must comply with state, federal and local ordinances.
5. **Non-composted manure** is a source of human pathogens and should **not be used in strawberry fields**. Any practice using manure and/or compost should be closely managed.
6. **Worker Health and Hygiene practices play a critical role** in minimizing potential contamination. The availability of clean toilet facilities, hand washing stations, and keeping track of employee general health are all part of good employee hygiene practices.
7. A food safety program and trace-back practices establish accountability. **The ability to trace back product from the consumer to the retailer to the shipment to the farm to the harvester is essential for quickly isolating the problem area and protecting the entire crop and industry.** Documentation must be kept to help prove proper attention has been paid to risk prevention.

Data from the European Union indicated that frozen berries are accounted for **over 7%** of all food incidents (**RASFF** – the Rapid Alert System for Food and Feed).

For example in year 2015:

- foodborne outbreak in New Zealand suspected (**hepatitis A virus**) to be caused by frozen berry products from EU
- foodborne outbreak caused by and **norovirus** (2 out of 3 samples) in frozen raspberries from Serbia
- **norovirus (GGII)** in frozen strawberries from Morocco, packaged in Belgium, via France

In the year 2009 USA were approximately 82,000,000 cases of foodborne illness, of which around 20,000,000 (or 24%) were associated with horticultural produce.

Profitability – to make profit with growing strawberries

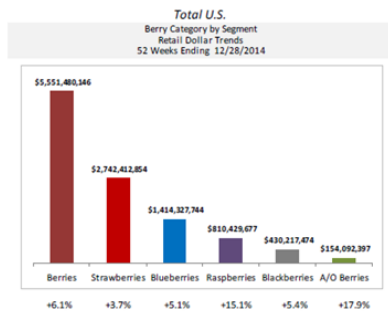
It is the most important challenge in strawberry production. With development and improvement of production methods in last few decades, yield per area is increased more than double.

Reducing of cost in production per 1 kg of strawberry fruits is a main reason of relatively stable prices on the market.

Only companies or strawberry producers associations which apply the newest knowledge and technologies can be competitive.



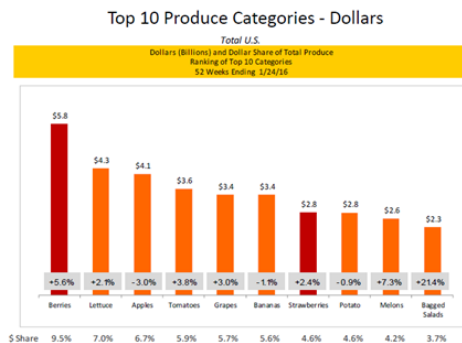
Plant factory researches



Source: Christine B. Christian - California Strawberry Commission



“Akisai” – Intelligent Cloud Platform Solution (Fujitsu)



Source: Christine B. Christian - California Strawberry Commission



GMO strawberries in pharmaceutical industry (Japan)

Some “new” trends in strawberry industry

Organic production – mainly 10-30 % higher prices on the market

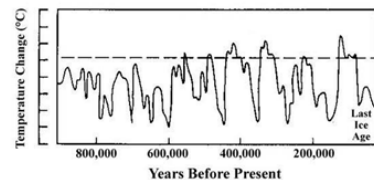
Pick your own (PYO also called U-pick) – a type of farm gate direct marketing (farm-to-table) strategy where the emphasis is on consumers doing the harvesting themselves.

Special packages and new strawberry products – young generation look for some new idea in food industry.

Online shopping – form of electronic commerce which allows consumers to directly buy strawberries from a seller over the Internet using a web browser.

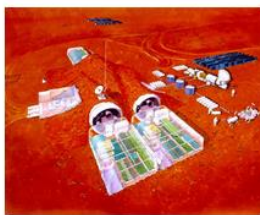
Plant factories – are closed growing systems which enables a farmer (agrotechnician) to achieve constant production of strawberries all year around. The facility utilizes artificial control of light, temperature, moisture, and carbon dioxide concentrations.

Climate change – true or myths!?



Challenges in strawberry production.

Future in strawberry production!?



Thank you for your attention!
Any questions?