

THE POSSIBILITY OF PRODUCTION AND PLACEMENT OF DONKEY'S MILK IN CROATIA

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GENERAL ABOUT CROATIA

- in Southeast Europe
 - land area about 56 594 km²
- three geographical agro-ecological regions:
 - Mediterranean (coastal) region / hot - dry summers, mild rainy winters / suitably for donkey breeding
 - Mountainous region / middle hot summers, cold winters, good distribution of precipitation / suitably for grassland and pastures
 - Pannonian region / good distribution of precipitation during the year / cereal areas



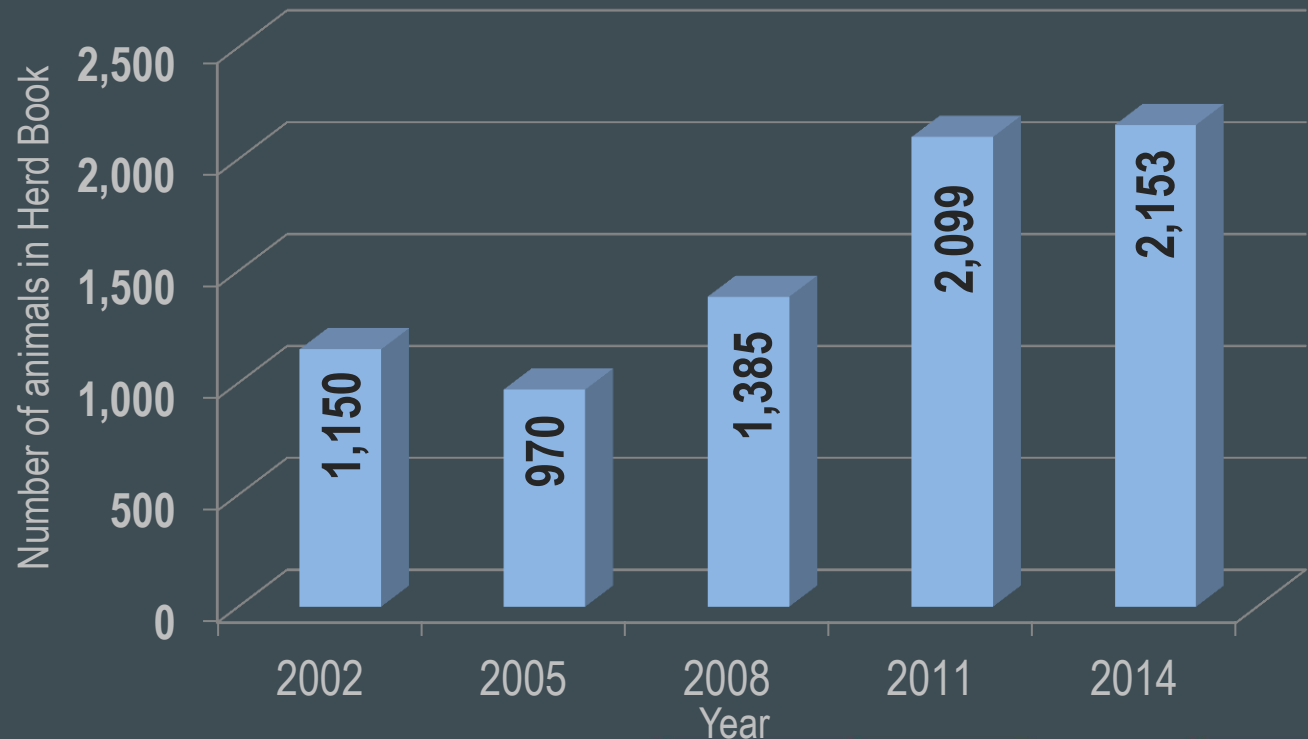
DONKEY IN CROATIA

- widely used as work animals in some regions of Europe (mainly in the Mediterranean area), Africa, Asia, North America, South America and Australia
- in Croatia, particularly in its coastal area, donkeys have lived for centuries
 - working animals, very good adapted on dry and hot Mediterranean agro-eco zone
 - milk & meat production in past time



DONKEY IN CROATIA

- donkeys breeding in recent decades has suffered significant changes.
- in the middle of the second half of the 20th century donkeys lost their primary functions, followed by a significant decline in the size of their population



Graph 1. Number of donkeys in Herd Book in Croatia during last decade (CAA, 2003-2015)



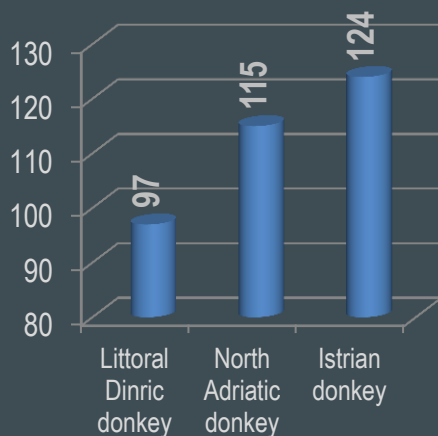
DONKEY IN CROATIA

- during a period of adaptation and natural selection, the total populations were profiled in three donkey breeds:

- Littoral Dinaric donkey

- Northern Adriatic donkey

- Istrian donkey



Graph 2. Wither height of donkeys breeds in Croatia (cm)



DONKEY IN CROATIA - TODAY

- working animals – very rarely
- hobby animals – moderate often
- used for tourism - moderate often
- **RESULTS:** population are in status **ENDANGERED** to **CRITICAL ENDANGERED**
- **Option for their sustainability of population**
- A) program for protection of this breeds: state subsidies
- B) find more models for their economic reaffirmation:
 - Milk; meat
 - Agro tourism, folklores manifestation, ...
 - Landscape management, ...
 - ...



DONKEY - MILK - experience and knowledge

- some traditional experience exist
- example - donkey's milk is traditional used in treatment of respiratory diseases
 - whooping cough - a contagious bacterial disease – often affecting children, characterized by convulsive coughs
- traditional experience and demand for donkeys milk motivate breeders for milk production
 - they try buy milk as functional food
- PROBLEM:
 - we haven't exact standards for milk production (milking, milk storage, ...)
 - we haven't information about milking potential of our breeds, impact of feeding, housing and management



AIM OF STUDY

- A) determine the potential for milk production in two dominant breed
- Littoral-Dinaric donkey
 - Istrian donkey
- B) proposed exact standards and ways for milk processing and marketing



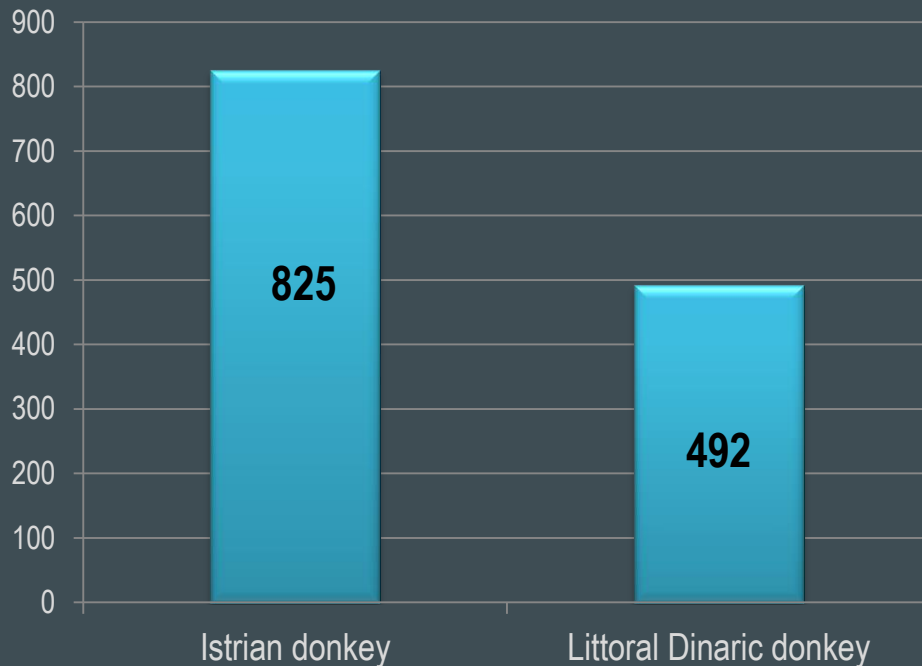
MATERIAL AND METHODS

- the study included 30 female
- four donkey farms (two in Istria, two in Dalmatia)
- by each jennies two control milking was conducted
- milking in the morning period (at 9.00 a.m.), manually
 - 3 hours prior to milking and immediately after milking, foals were physically separated from their mother, but left within the visual contact
- after milking, the amount of milk was measured and the samples collected for further analysis were stored at 4 °C until the chemical analysis
- shares (%) of dry matter, milk fat, and milk protein were determined by the method of infrared spectrometry by Milkoscan FT120 (HRN ISO 9622:2001)
- the results were processed using of the SAS statistical package



RESULTS

- Istrian donkeys have a higher milk yield compared to Littoral-Dinaric donkey
 - 825 vs. 492 mL / milking

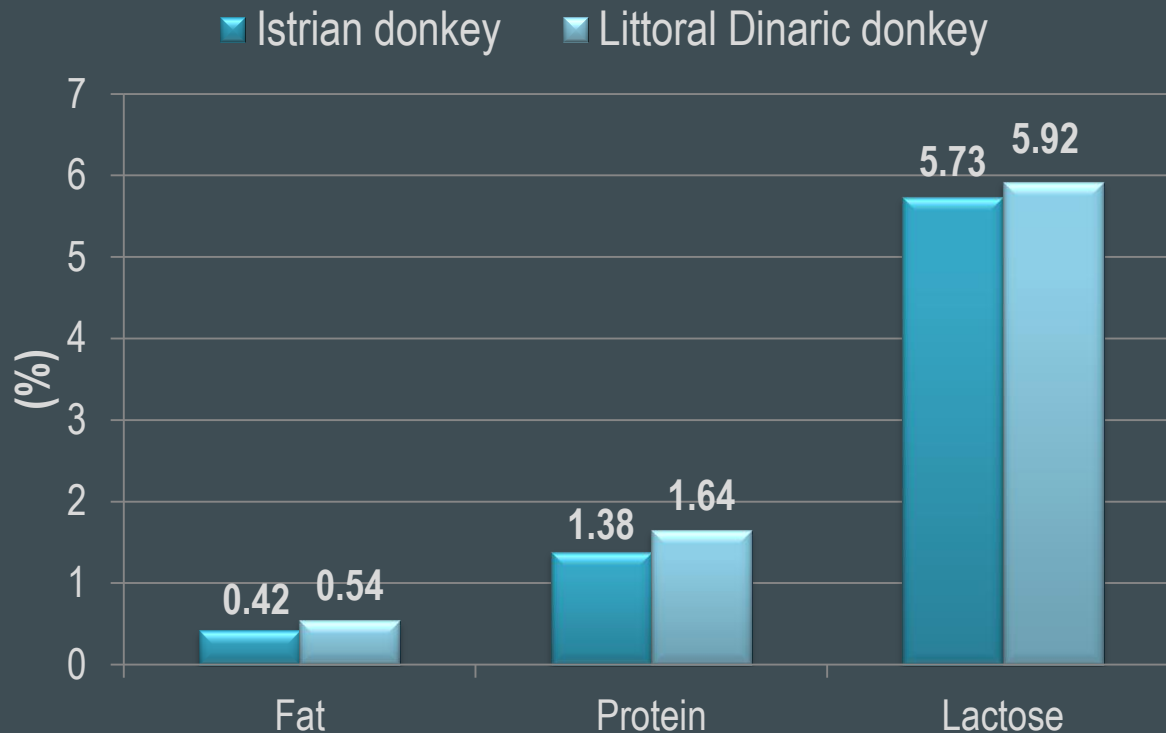


Graph 3. Level of milk production Istrian and Littoral Dinaric donkeys (mL/milking)



RESULTS

- Milk of Istrian donkey had lower content of milk fat than milk from Littoral-Dinaric donkey (0.42 vs. 0.54%), milk protein (1.38 vs. 1.64%) and lactose (5.73 vs. 5.92%).



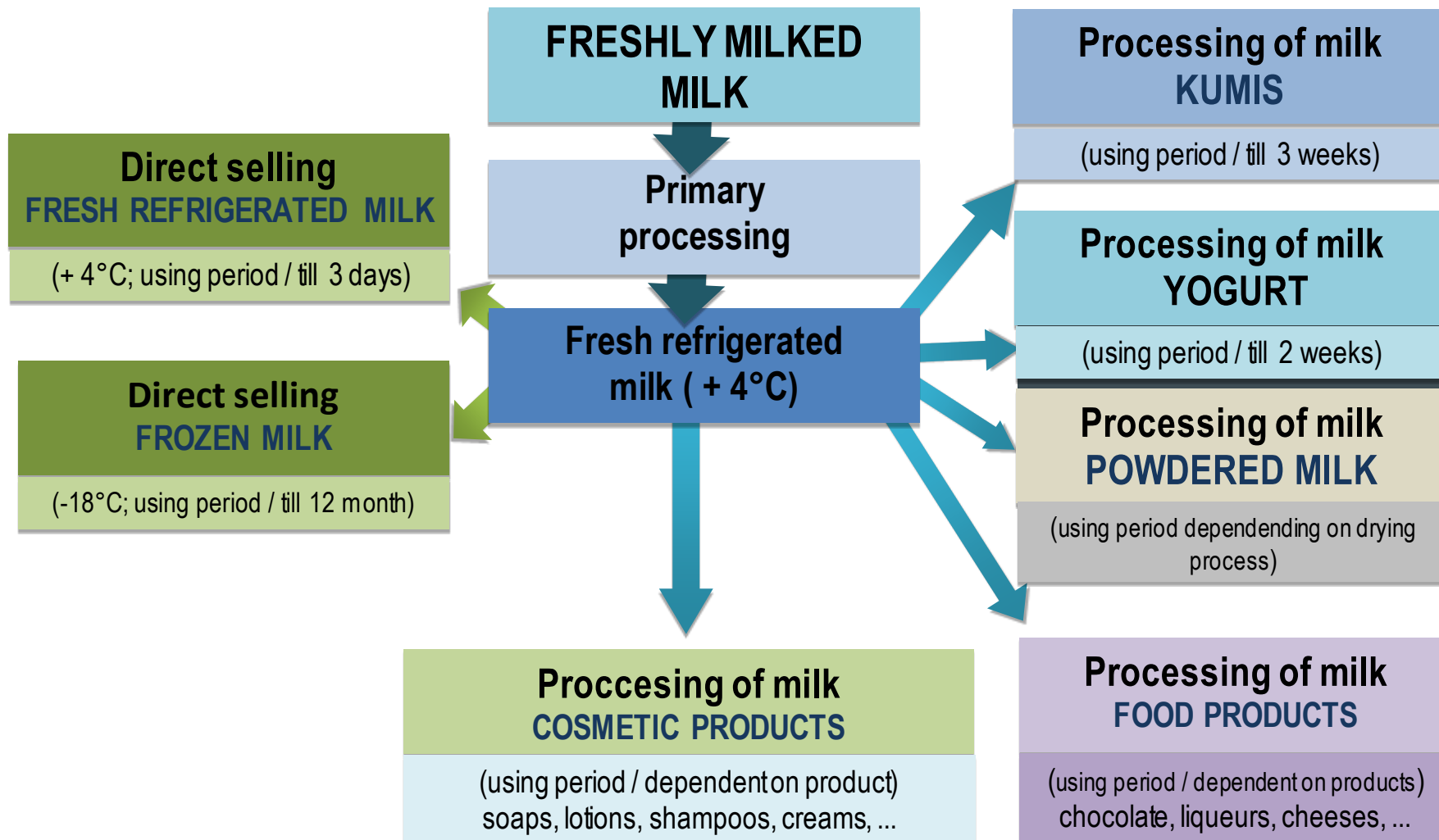
Graph 4. Chemical composition of milk of Istrian and Littoral Dinaric donkeys (%)



PLACEMENT OF DONKEY'S MILK

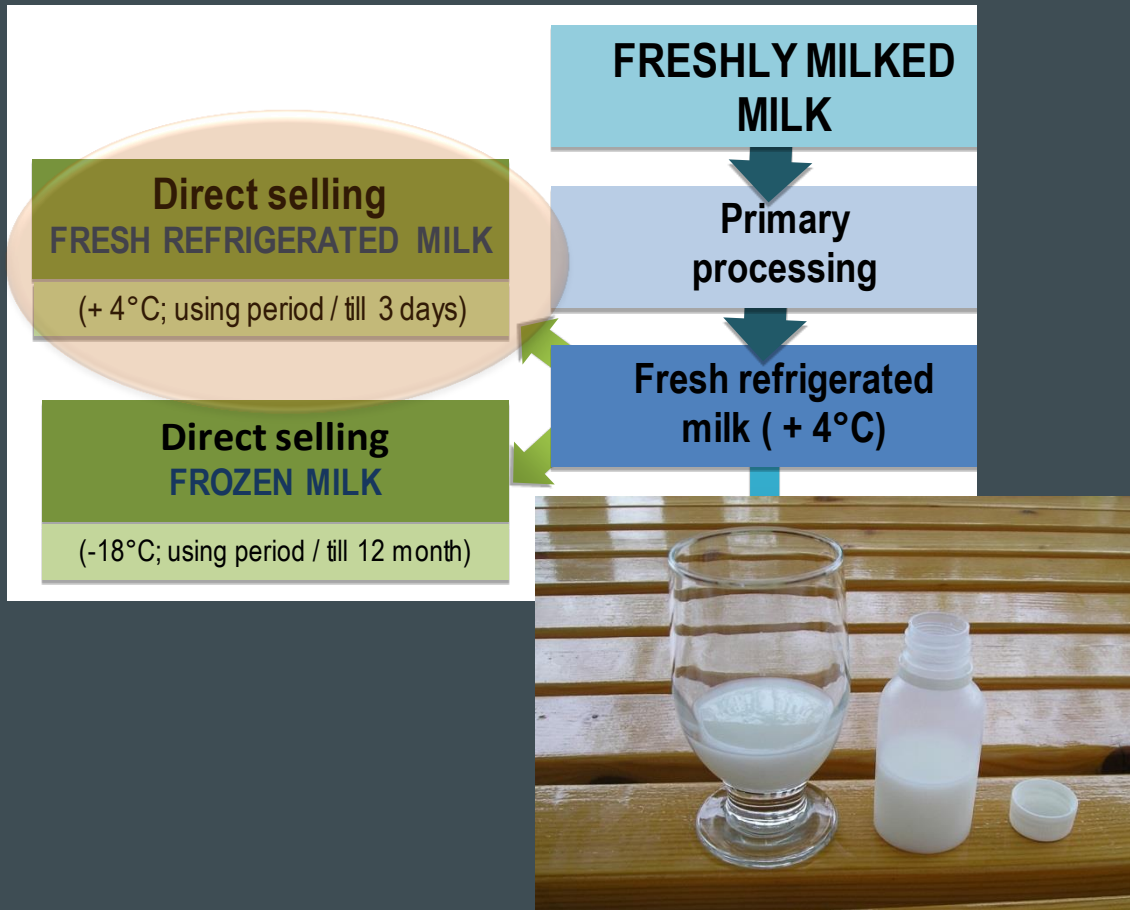


- What we can do with fresh milked milk?



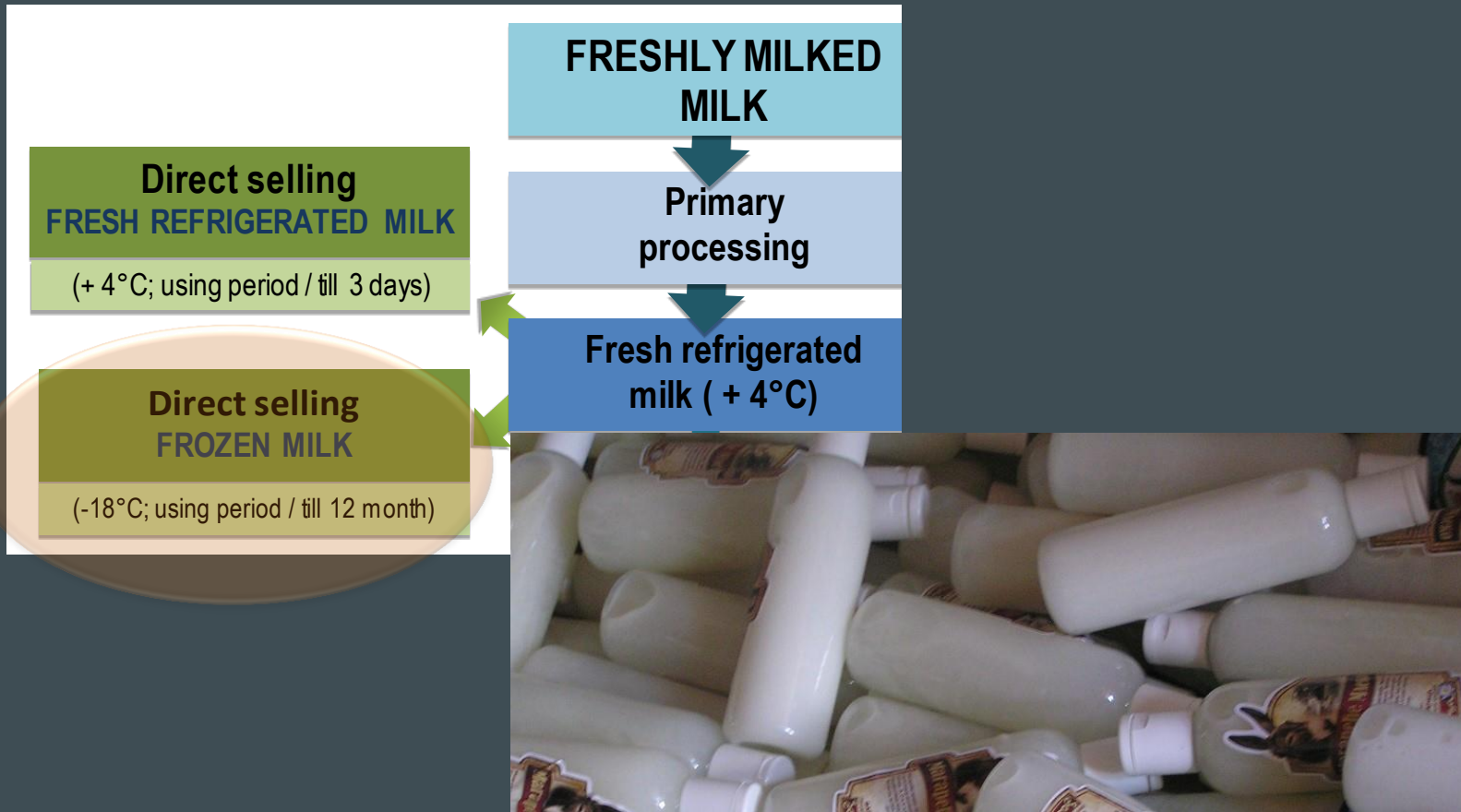
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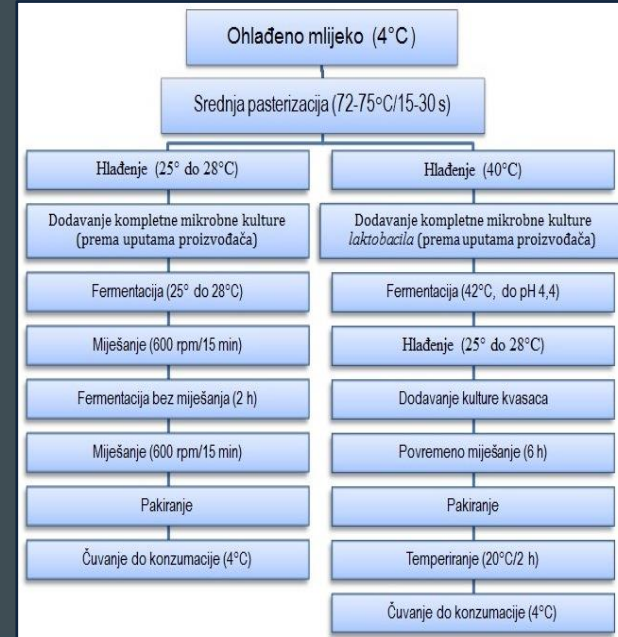
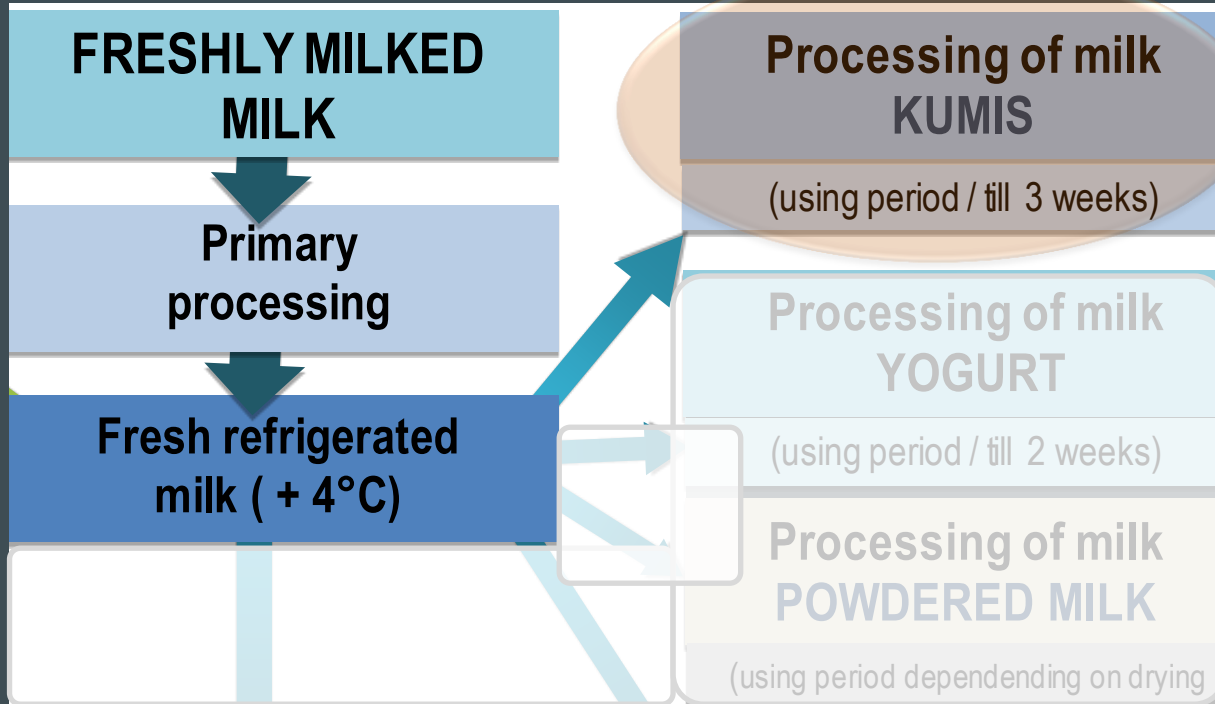
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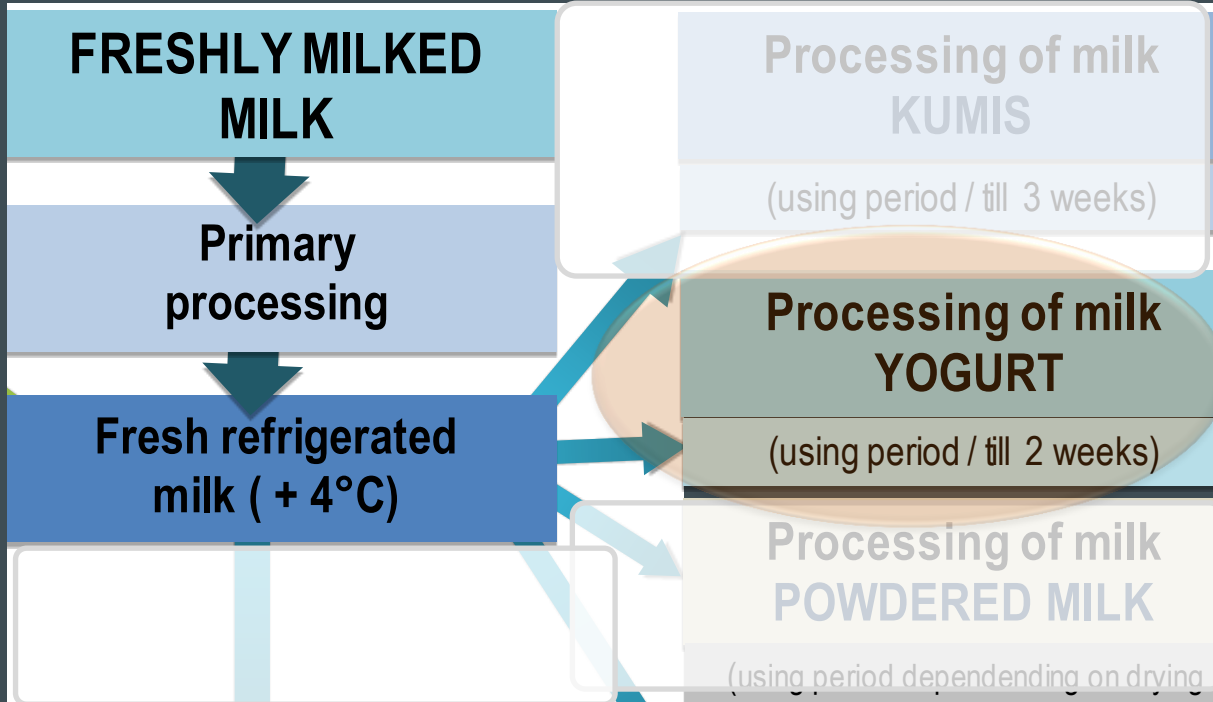
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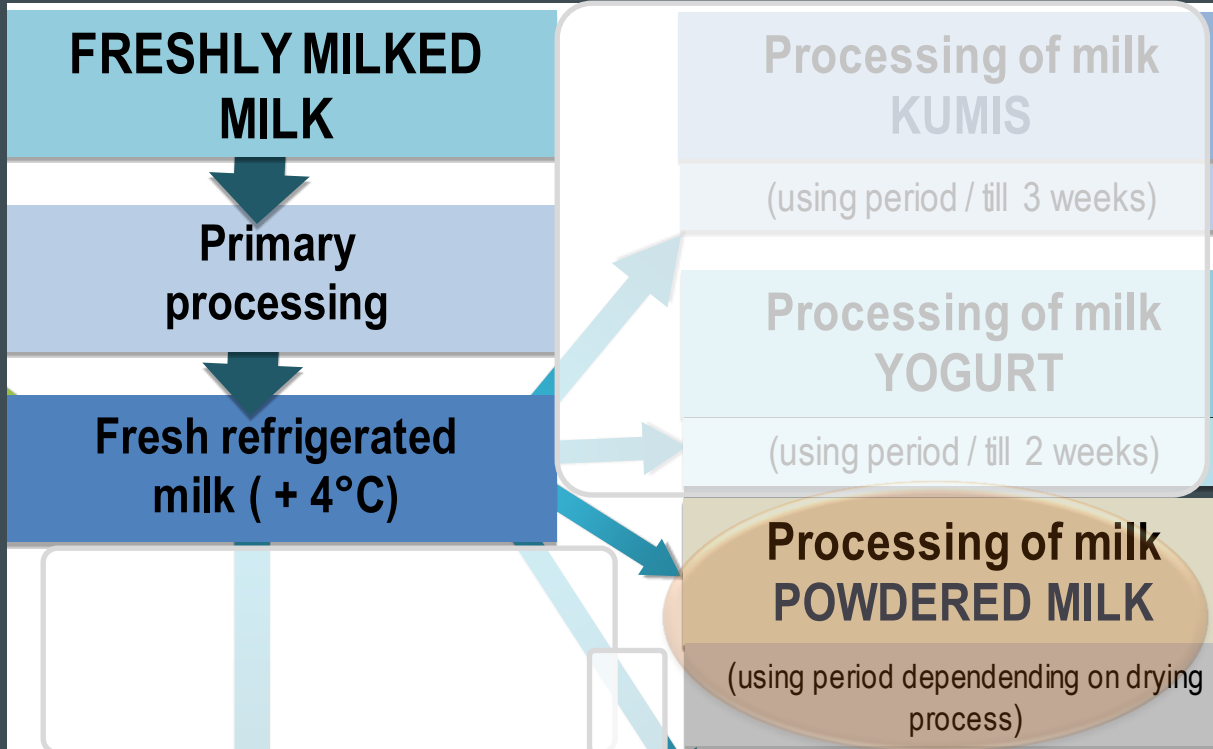
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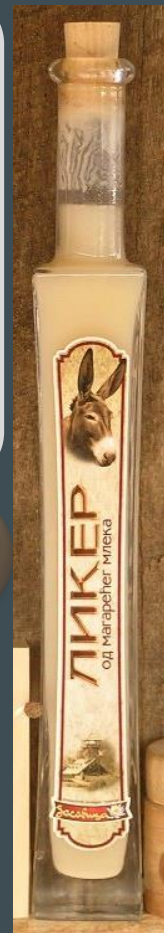
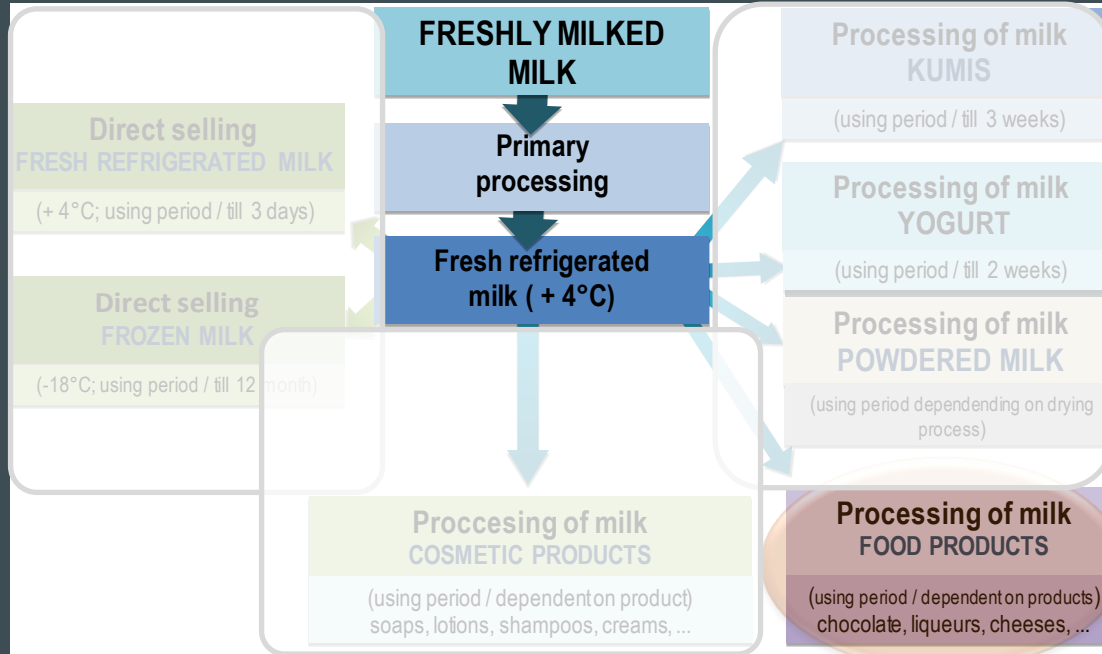
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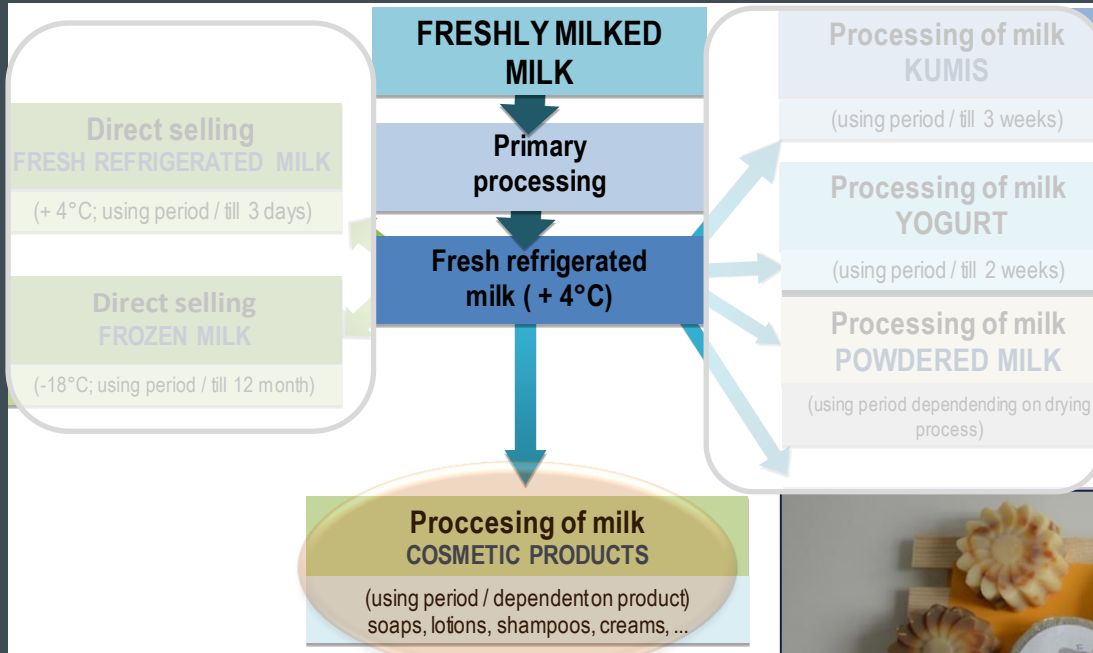
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THE POSSIBILITY OF PRODUCTION

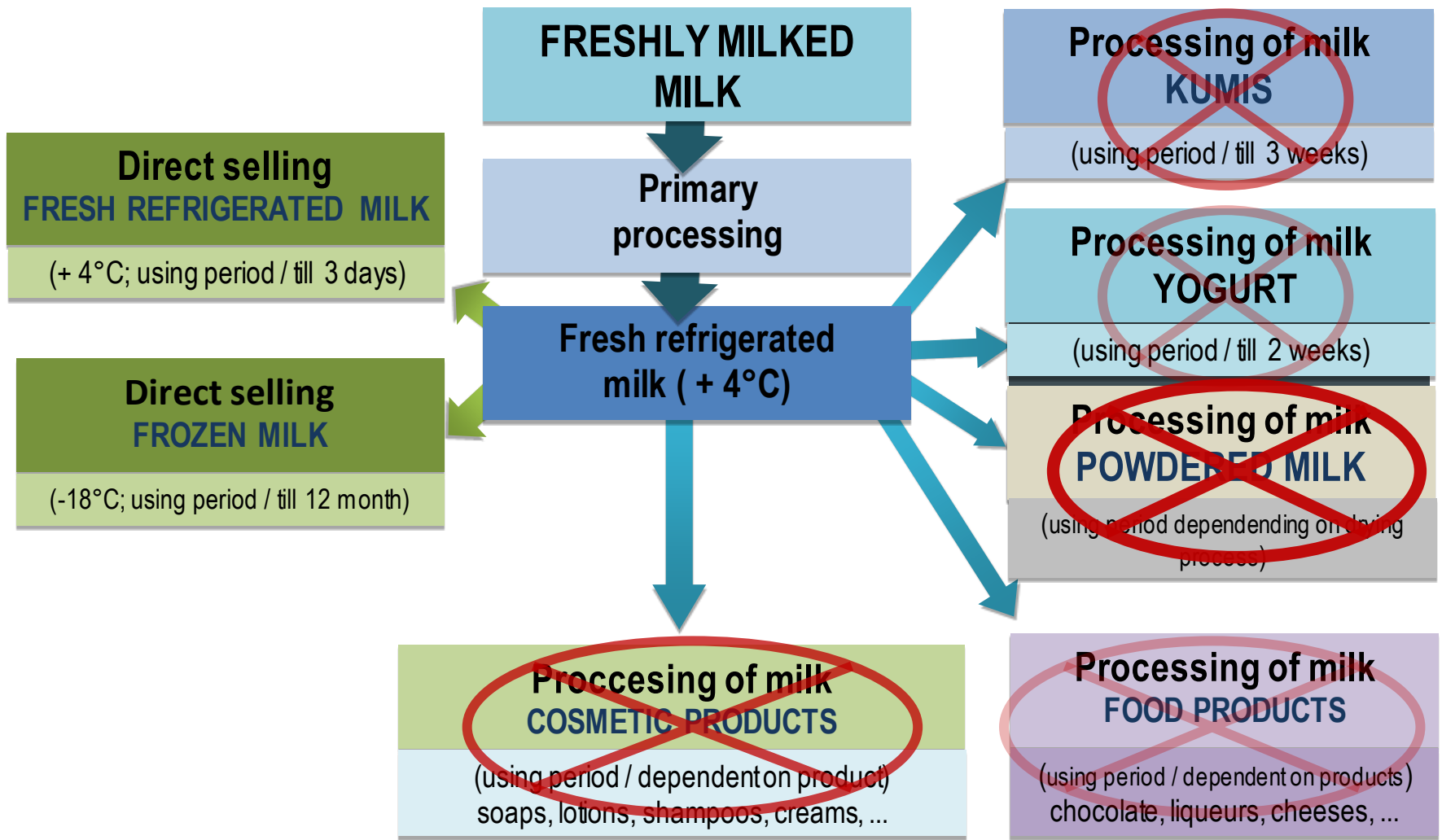
- 1.100 female donkeys are in reproduction (in 2014)
- 15 to 20 milking farms (5 to 100 donkeys)
- farmers are interested
- consumer's are interested

WEAKNESS

- management of production (knowledge, ...)
- marketing and selling of milk
- diversification of products



THE POSSIBILITY OF PLACEMENT



WHAT WE CAN DOING

- education of farmers
- education of consumers
- connecting of stakeholders in associations (breeding, production)
- research
- marketing (writing and electronic media)
- ...





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Mlijeko kobile ili magarice, pomalo je tajnovito. Premda su stariji narodi tisućama godina konzumirali ovu namirnicu, na području Europe ne spominje se često. Stoga je malo saznanja o vrijednosti kobiljeg ili magarčinog mlijeka, posebice u široj javnosti. Ukazivanje na njegova svojstva, način proizvodnje, prerade i plasmama bili će poticaj svima koji su u određenom doticaju s mlijekom ovih vrsta, na kritičko promišljanje. Brojni proizvođači koji sadrže kobile ili magarčino mlijeko obogatili će ukupnu ponudu, posebice ruralnih područja. Autohtone pasmine konja i magaraca kroz ovaj vid proizvodnje čuvaju se od zaborava, istodobno oplemenjujući naš krajobraz i svakodnevicu.

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MLIJEKO KOBILA I MAGARICA

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Baban Mirjana, Antunac Neven

MLIJEKO KOBILA I MAGARICA



ZAGREB, 2014.

CONCLUSION

- favorable milk production from these two breeds justifies the establishment of this kind milk production if continued placing is provided.
- the modest tradition of donkey milk consumption in Croatia opens the possibility for its production and market development.
- most consumers prefer consuming fresh milk as a functional food in the rehabilitation of some health disorders.
- a small part of the consumers have knowledge about other options of donkey milk consumption, like food products with added value (*koumiss*, *milk powder*) or cosmetics.
- it is possible to increase production and consumption of donkey milk in Croatia with good organization of production networks (from producers to consumers).



Thank you for your attention!



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