

SESSION 4: TO EACH HIS OWN MILK

Presided by Françoise Sabban

Traditional women cheesemakers in developing countries: the challenge of food safety.

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Traditional cheeses are usually produced at the farm or village level and have fed billions of people worldwide for centuries. They are characterized by the strong linkage to the territory of origin and are testimonial of the history and the culture of the communities that produces them. The women, especially in developing countries, play a crucial role in this contest, because are most of the time the unique responsible of traditional cheese making. **They hold the culture of making cheese** handed down orally from generations. The women in developing countries are the heart of their society, beyond the historical responsibility of making cheese, they take care of the family. Besides making daily houseworks and being the only responsible for nutrition and care of children and the rest of the family, women till the fields and their family gardens (most of the time carrying a child on their back) and take care of small animals. In addition, they are responsible of food processing (they spent from one to four hours per day to search and collect water and wood for the kitchen), handcraft and small trade. In Africa **80% of marketed food is guaranteed by women**. For all these reasons, they work very hard (more than 14 hours per day), silently, and they hope to be able to grow up their children (under-five years mortality rate is over 15%) and to let them understand the great importance of their roots, culture and history. In few words these women are the **“Invisible Energy of Development”**, Licitra et al (2008).

Besides the social aspects of development, women in several countries produce safe food even if almost zero technology is available. Few examples: In Benin, the ethnic group Peuhl produces the **Wagashii cheese**, fig.1. They use the latex of *Calotropis procera* to coagulate the milk and produce a cheese with very low proteolytic activity that allows them **to boil the cheese over and over again, every two days**, for about one month since it has been produced. This simple practice of prolonged heat treatment makes the cheese safe. Alternatively, cheese can be sun-dried to extend shelf life. **Sun drying technique** is used also in **Morocco for the Lakila cheese, in Burkina Faso for the Galal cheese, in Mali for the Gashi cheese and in Niger for the Takumart cheese**. In India women cheese makers add about 40% of sugar in the Penda cheese. It is also common to use spices in cheese production (honey, garlic, thyme, cumin) for their **antimicrobial properties** and in specific for their ability to slow down degradation processes allowing a better food conservation and a naturally reinforcement of the immune system. Education is a crucial process for the women cheese makers in developing countries, fig. 2, to realize how important is their role to world wide society to contribute to safe food and cultural biodiversity. Furthermore working, in the occasion of the “International women cheese making course” held in CoRFiLaC, a Dairy Research Center in Ragusa, Italy, in April 2007, with women of twenty different countries, made all teachers conscious of the ignorance in so many different technology and on the scientific explanation of these processes that make these cheeses safe.

The “safety” of traditional cheeses **can not be simply related to “raw milk issue”**, there are a complexity of factors that make the products safe. Most of the time, it is a synergy of actions that are inhospitable to the micro bacteria in cheese production from raw milk. There include bacteriostatic and/or bactericidal actions (antimicrobial activity of raw milk, pH, temperature, salt and sugar concentration that change through the cheese-making process and the final concentration of salt, moisture, and free fatty acid and amino acids in the final product). The FDA in the USA finally recognized these effects by including the “equivalence of pasteurization” to ensure the control of pathogen microorganisms. The real challenge for researchers and cheese makers is to understand the role of the “multiplicity of practices” and demonstrate scientifically the importance of those practices, in combination with cheese making from raw milk, to deliver the maximum safety benefits to the consumer. Johnson et al. (1990), Altekruise et al. (1998), Fontaine et al. (1980), Genigeorgis et al. (1991), demonstrated that raw milk cheeses are not more risky than industrial cheeses made from pasteurized milk. Improper pasteurization, post contamination, storage, cross contamination are the main conditions responsible for outbreaks.



Safety is a relative concept; it is not an inherent biological characteristic of food. Food may be safe for some people but not for others, safe at one level of intake, but not another, or safe at one point in time but not later. On the contrary, we can define a safe food as one that does not exceed an acceptable level of risk. Decisions about acceptability involve perceptions, opinions and values, as well as science. When such decisions have implications for commercial or other selfinterested reasons, food safety enters the realm of politics, Nestle (2003). The public opinion has to understand that there are no risk-free environments and that to live is to take risks. Furthermore, people need to understand that it is unseemly for a free people to expect to be totally protected from all risks by the government, Rollin (2005).

Furthermore, what is the real meaning of “food safety”? In many developing countries where billions of people (more than 50% of world wide population) live, it means **“to hope that they can get food every day”**. Actually, food safety **is a complicated “Ethic Issue”** that should become the main objective of any political decision. To give cultural and social recognition to women and to their rural communities through protecting traditional cheeses will contribute **to save their bio-diversity** and **avoid the disappearance** of these ethnic groups with an unbelievable consequence on social justice and on planet peace.

Food safety for consumers of developed countries is an important conquest but should not be used for business objectives.

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