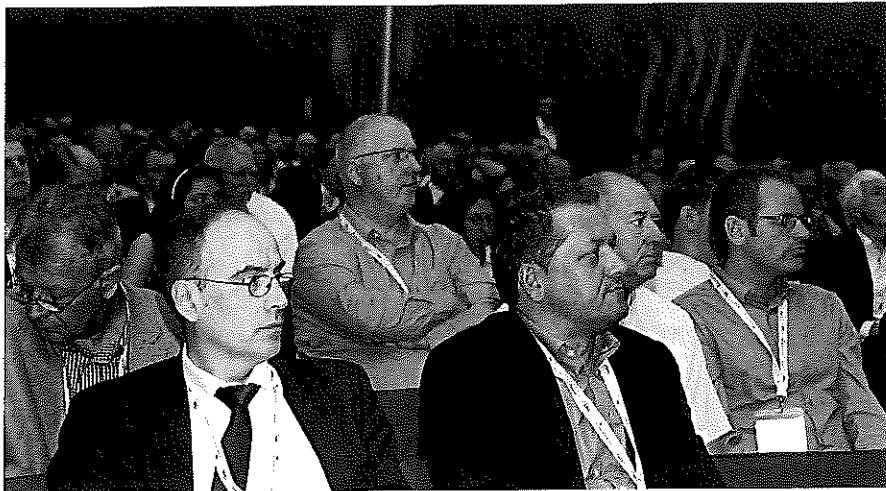


The world of whey got together

7th International Whey Conference



Presentations on new ways of whey processing attracted much interest at the conference (photo: IDM)

With almost 700 participants, the 7th International Whey Conference was truly the world's largest meeting of representatives of the worldwide dairy industry. Held in early September in Rotterdam, The Netherlands, the event provided up-to-date information on whey, from markets and technology and processing up to health and structure and lactose and oligosaccharides. IDM took part in the conference.

Enormous growth

The opening presentation at the conference that was organized by ADPI and EWPA was held by Christophe Lafougere from the French consultancy Gira. Lafougere talked about supply and demand developments for whey in a global perspective. 92% of the world's dry whey products

come from the EU and the US. 2014 global production is estimated at almost 2.7m tons of whey powder, some 2m tons of WPC, over 500,000 tons WPI and almost 400,000 tons of other dry whey products.

In line with the expected growth of global cheese production, global whey production will increase by almost 2m tonnes until 2018 with the EU supporting 40% and the US supporting 23% of that growth. In standard whey powder eq., global whey consumption is forecast to grow by 2.7% CAGR until 2018 which translates into 770,000 tons higher consumption every year. Driver of this will be a.o. the growing production of infant formula. Important areas of consumption will be Asia (China), the Middle East, North Africa and South America. As a consequence of the Russian embargo, Lafougere estimates that 150,000 tons of whey products could get lost in the EU if

processors all switch to milk powder and butter – provided the embargo lasts for a year, which Lafougere doubts.

Thinking out of the box

Geoffrey Smithers, a consultant from Australia, commented on technology advances like membrane separation that has allowed for significantly expanding the range of added-value whey products. Smithers pointed out to an 'ocean of acid whey' (550m liters) in the New York State of the US where all the Greek-style yogurt manufacturers are. A great part of the acid whey still serves as feed but there are options like continuous chromatography or membrane adsorbers to isolate valuable minor components. Using ion exchange technology one can even produce highly pure lactose that could be converted into GOS.

The industry, Smithers said, needs to bring down costs by use of new processing methods such as charged UF membranes or non-thermal processing with ultrasound. Smithers also recommended



Dr. René Floris, Division Manager Flavours & Texture at NIZO, presented whey protein fibres that can very well serve as meat replacer as well as very creamy but completely fat-free soft ice samples (photo: IDM)



Christophe Lafougere (left) and Geoffrey Smithers gave the opening presentations (photo: IDM)

to think of blending bovine whey protein products with non-bovine whey or even with soya, lupin or pea protein.

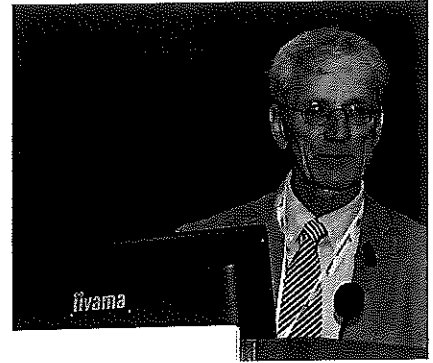
Technology: Cascades

Prof. Ulrich Kulozik, Technical University of Munich, introduced the audience to concepts for improving the performance of membrane filtration. Increasing the membrane resistance to water flux is the key to membrane performance. For this, Kulozik combined MF and UF. When MF removes aggregates, bacteria and fines from the whey, the UF process shows a much bet-

ter performance and the hygienic quality of the retentate improves. Another way to get high quality whey products is a cascade process in which UF removes proteins so that a higher concentration by RO can be achieved. Kulozik used dynamic (rotating) UF to come to a protein concentration of up to 30% and a dry matter of up to 40%. The scientist recommends using ceramic membranes first and from 15% protein concentration on dynamic UF. The process was 5 times faster for skim milk and 3 times faster for whey compared to standard processing. Prof. Kulozik is prepared to share his presentation with interested people – <mailto:ulrich-kulozik@tum.de>.

Prof. Albert van der Padt, Friesland-Campina, described how to 'separate the inseparable'. Molecules that are almost the same in size like α -Lactalbumin and β -Lactoglobulin can be separated using membrane cascades that work like distillation columns. Yield increases with membrane surface but with a flux optimization, a compromise between costs and yield can be found.

Another interesting concept was explained by Meike Samtlebe, University of



Prof. Ulrich Kulozik, Technical University of Munich, introduced the audience to concepts for improving the performance of membrane filtration (photo: IDM)

Hohenheim. Samtlebe's target was to find ways to improve the microbiological quality of whey by reducing the count of bacteriophages. Reduction of phages in whey is possible when using a membrane process as the phages are bigger than whey proteins. A more than log 4 reduction is possible when using a membrane with a cutoff at 100 kD. Phage reduction can be increased by adding bacteria as adsorbents for the phages.



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