



FIND A STATION

Waste Why? Some Say No Way.

by TED BURNHAM

January 13, 2012

Swiss cheese-maker Ernst Waser lets the whey drain off from the skimmed cheese curd through the cheesecloth.



GAETAN BALLY/KEystone /Landov

Swiss cheese-maker Ernst Waser lets the whey drain off from the skimmed cheese curd through the cheesecloth.

When you open a tub of yogurt, do you pour off that cloudy layer of liquid that collects on the top? If so, you're not just wasting nutritious protein and lactose – you're tossing out what some scientists see as a valuable raw material.

Strange though it might seem, researchers at the Fraunhofer Institute for Process Engineering in Germany [announced this week](#) that they're turning whey into plastic-like films.

Their material is really the whey protein, the same stuff you might mix into a post-workout smoothie. When heated in a process called "denaturing," the protein molecules change shape. When sprayed onto a surface, such as plastic wrap, they form a thin, flexible layer that helps protect food from oxygen and moisture, the researchers say.

That's good news for dairy producers, who now may have one more use for a waste product that once was only good for fertilizer or hog feed.

So how did this mild-mannered substance go from pig food to plastic wrap?

Whey has always been a byproduct of cheese-making. [Ed Janus](#), a Wisconsin-based journalist and dairy historian, tells *The Salt* that farmers used to insist that cheese makers who bought their milk send leftover whey back to the farm.

"A lot of farmers, especially farmers that raised hogs, they wanted their whey back ... for their hogs," Janus says.

But as the market for cheese expanded, so did the volume of whey that producers had to get rid of. Since whey is mostly water, the cost of transporting the weighty liquid became prohibitive. Instead of returning to farms, a lot of whey ended up going down the drain.

But then came the whey revolution.

"The modern era started in the 1960's," says [John Lucey](#), director of the Center for Dairy Research at the University of Wisconsin, when food scientists figured how to capture the best stuff from the whey.

New membranes and filters made it possible to separate proteins and sugars from the water. Those solids now often show up as powders, and find their way into [cranberry-honey smoothies](#).

You're also eating those solids as additives to other products. According to the [U.S. Dairy Export Council](#), a non-profit industry group, whey products are used in everything from baked goods to processed meats to [emergency food rations](#), and are even added back into some dairy products. Depending on the food, whey might be used to add protein, to improve texture and flavor, or as an egg replacement.

In some parts of the world, like central Europe and northern Africa, there's a long history of drinking raw whey. There's even a fizzy soft drink called [Rivella](#), popular in its native Switzerland, which uses whey as a base.

Although whey beverages haven't caught on with Americans, at least one small producer sees potential. White Cow Dairy, in upstate New York, this year started marketing a line

of "[dairy tonics](#)" — fermented probiotic smoothies made with whey, yogurt, and fresh fruits.

But these beverages will have to overcome the assessment of one food scientist that whey "would be a poor substitute for milk."

Well, at least it may be a good substitute for plastic.