

99.99 Percent Sure

Jensen Meat's new ground beef treatment provides a new degree of food safety. By Nicole Zaro Stahl.

An industry observer recently remarked that ground beef processors must sometimes feel like they're playing Russian roulette. No matter how clean they keep their own plants, every time a shipment of meat arrives from an outside supplier they run the risk of introducing pathogens into their product stream.

Southern California's Jensen Meat Co. has made a pioneering move to wrest back control of its own destiny—and pass on a much higher level of confidence in the safety of its products to the public. Over the past two years, a cooperative effort between Jensen and antimicrobial systems manufacturer Alcide Corp. has yielded a new pre-treatment that provides better than 99.99 percent assurance that Jensen ground beef is free of *Salmonella*, *E. coli* O157:H7, and other harmful pathogens. Industry-wide adoption of this technology could ultimately “eradicate *E. coli* from the beef supply,” enthuses company president Bob Jensen.



At Jensen Meat, an antimicrobial is sprayed on ground beef as the meat is screw-conveyed to a grinder. (Photo courtesy Jensen Meat.)

James Marsden, Jensen's process, while not a silver bullet for the entire beef industry, does represent “an important step forward” in food safety. “This provides a whole new way to reduce contamination at a critical juncture” of product manufacturing,” he says.

At the heart of the system is Sanova, a disinfecting agent consisting of sodium chlorite and citric acid. The antimicrobial is already employed in beef slaughter operations and, much more commonly, in poultry plants, where it is sprayed on some eight billion pounds of chicken a year.

What is unique about Jensen's environment is the use of the compound on trimmings, as opposed to whole carcasses. Pathogens reside on the meat exterior, not in-

side the muscle. But with ground beef, the outside becomes the inside. The breakthrough lies in the ability to apply what is essentially a surface disinfectant to all facets of the irregularly-shaped trim, killing disease-causing bacteria on contact.

At the Jensen Meat plant, the Sanova solution is sprayed on incoming trim as it churns through a screw conveyor on its way to the grinder. While it sounds simple, this delivery method entailed a significant development effort on the part of both companies.

Adequately saturating the trimmings with the antimicrobial was a major stumbling block, says Bob Jensen. “One of the problems we had to solve,” he recalls, “was making sure the product was sprayed with enough chemical to ensure all surface areas were covered, without affecting the quality and color”—an especially important attribute for a processor who has incorporated the slogan “quality in the pink of condition” as part of its corporate identity.

Sanova kills germs through oxidation, explains Alcide president John Richards. “We want to apply enough to oxidize germs but not oxidize the meat. The challenge is finding just the right dosage level to disinfect meat” while keeping the meat's original characteristics intact.

Another complexity was ensuring that the liquid spray contained the right proportions of sodium chlorite, citric acid, and water, and then delivering the solution at its highest potency, which occurs just after the two chemicals are mixed together.

The chemicals are pulled individually out of barrels and combined through a computer-controlled system that consistently provides the right formulation to make the Sanova effective, says Jensen.

While Alcide uses a patented hose system and spray equipment, which are supplied as part of the total disinfecting process, the mechanism for dispensing the solution was subject to some refinement in the Jensen plant. These modifications resulted in a network of high-pressure sprays set at different angles in the screw conveyor to deliver appropriate coverage to the trim.

The application process also had to prevent the meat from becoming too warm or too moist, factors which degrade its ability to grind properly. After the screw conveyor, the trimmings go through a brief drying step on a secondary conveyor that tumbles them to shake off any ex-

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cess solution. Moisture is also driven off through a CO₂ process Jensen put in place.

“We have to meet a lot of USDA regulations to make sure we are not getting moisture absorption in the product,” says Jensen, who also points out that because Sanova is applied before grinding, the process is considered a pretreatment or processing aid, not an additive, and does not have to appear on the product label.

Despite the need to work out the intricacies of its delivery system, the germ-killing process has had minimal impact on processing time at the Jensen plant. Sanova exposure lasts about 15 seconds, so “time is not even an issue,” says Jensen. While the company did have to introduce an extra 12 to 15 feet of conveyor, application is automated so there is no need for additional personnel.

The cost impact is nominal as well. “Almost any processor in the United States can install this system for a small capital investment,” states Jensen. “I would venture to say that the cost to the consumer is an average of a penny per pound. That’s a small price to pay for food safety.”

Jensen’s interest in the antimicrobial treatment is undoubtedly spurred by the company’s position in a narrow niche market. The processor, founded in 1958, started to specialize in ground beef in the late 1980s. Concentrating on private label production for food-service distributors, quick-serve restaurants, and theme parks, it achieved “phenomenal growth,” Jensen relates. A major key to success is its patented fill system that interweaves ground particles during patty formation, producing a cooked hamburger that holds together and retains juices even at temperatures in excess of 170°F.

With ground beef as its only business, involvement with the intervention technology is a natural extension of the company’s concern to make its products safer for the consumer. When he heard about Sanova’s potential to dramatically decrease harmful pathogens —“a three or four log reduction,” he says—Jensen began “a long, intensive study” with the antimicrobial manufacturer.

Alcide had already seen Sanova’s effectiveness validated in the lab, but it also needed to confirm the viability of the process in an actual plant, along with fine-tuning the delivery system. “Alcide spent a significant amount of money with independent labs verifying the success of the process within our facility,” says Jensen. “We’re extremely pleased with the study results,” he continues, noting that tests showed a consistent two to three log reduction, with generic *E. coli* “almost non-detectable.” While guaranteeing a 100-percent pathogen-free product is not scientifically possible, Jensen concedes, “we’re as close to that as we can be.”

Jensen is currently mounting a modest promotional initiative

to explain its use of Sanova. Already, its corporate telephone message system informs callers placed on hold that the company now offers “a new procedure to reduce and eliminate *E. coli* and other pathogens in ground beef with the application of a patented microbiospray,” encouraging them to ask for details.

In late June, the television show “World Business Review,” hosted by retired Gen. Alexander Haig, began broadcasting a 15-minute segment on food safety over cable networks. The program features Jensen, Jim Marsden from Kansas State, and Nancy Donley of Safe Tables Our Priority, a consumer group, specifically discussing Sanova as a measure to combat harmful bacteria in food products. Later this summer, the company will send out tapes of the broadcast and details on its validation study to major customers and other outlets interested in the process.

But like many innovators, Jensen downplays the marketing dimension. “We think it might increase demand for our product,” he comments, “but mainly it will give assurances to our current customers that they’re receiving the safest product available on the market today.”

He also appears to regard the pretreatment as more of a benefit to industry and the public than to his own company. “It’s the responsibility of a processor or grinder to take advantage of any procedure available that can help make product safer,” he observes.

To that end, instead of looking at Sanova as a competitive advantage, he has high hopes it will be adopted throughout the meat processing arena. “We would like to see everyone using it, especially the slaughterers,” he says. “If an animal is sprayed prior to slaughter and other safety intervention procedures are put in place, like hot-water rinse, steam, and vacuum, we can basically eradicate *E. coli* from the beef supply. Then the next step is to further eradicate it from the cattle themselves.”

It may take quite a while for this wish to become a reality. In the meantime, Alcide’s John Richards recommends a multi-hurdle approach. At present, although Sanova enjoys broad usage on meat carcasses after slaughter—in about “20 or so major plants,” says Richards—its presence is not universal. This leaves ground beef producers, who receive meat from multiple sources, still vulnerable to cross-contamination, so application of Sanova in their plant makes a lot of sense.

In the interest of food safety, Jensen is eager to share his research, “even though our dollars paid for it,” he states. Any recall or problem with product is bad for the whole industry, no matter where its origin, he notes, reasoning, “We can’t sell all the ground beef in the world. Innovations have to be shared freely.” MP