

Food Safety
Preempt
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QUESTIONS & ANSWERS: PREEMPT

Q. What is PREEMPT?

A. PREEMPT is a blend of 29 different organisms (bacteria) that are naturally present in the intestines of healthy adult chickens. Tests have shown that these bacteria are the ones that help adult chickens keep salmonella bacteria from establishing themselves in the chickens' intestines. The "good" bacteria basically block all the sites on the intestinal walls where salmonella might take hold, so the salmonella must pass harmlessly out of the chicken's body.

Q. How does PREEMPT work to protect a chicken against salmonella?

A. Think about the interior walls of a chick's intestines as a parking lot with a limited number of parking spaces. When the beneficial bacteria in PREEMPT reach the intestinal walls, they essentially fill up the available parking spaces. When salmonella bacteria subsequently enter the intestines, they have no place to "park" and, therefore, are passed out of the chick's body.

Q. How effective is PREEMPT?

A. PREEMPT greatly reduces salmonella in chickens.

In laboratory tests, the bacterial mixture reduced salmonella in chicks' ceca, small sacks in their intestines, by 99.9 percent. Also, the number of salmonella bacteria per gram of cecal content dropped from 1,000,000 per gram to less than 10 per gram.

In the field tests accepted by FDA, PREEMPT reduced salmonella to zero percent in treated chickens at commercial poultry houses.

In field tests in Puerto Rico, 21 percent of untreated chicks tested positive for the presence of salmonella on their skin and feathers, while only 8 percent of PREEMPT-treated chicks tested positive. When the chicks' intestines were checked at the processing plant, an average of 2.7 percent of treated chicks showed contamination, less than half the 5.7 percent contamination found among untreated chicks.

Q. Are the effects of PREEMPT permanent?

A. Yes. Once the beneficial bacteria have established themselves in the chick's intestines, they continue to live and flourish there, greatly reducing the ability of salmonella to establish themselves in the intestines.

Q. Does PREEMPT protect chickens against other foodborne bacteria such as listeria, campylobacter and E. coli 0157:H7?

A. There is substantial evidence that PREEMPT helps protect chicks against listeria and *E. coli* 0157:H7. Preliminary results also indicate the product help protect chicks against campylobacter. While experimental testing in these areas is promising, field testing has not yet been conducted.

Q. Does PREEMPT have an effect on the eggs produced by chickens that have been treated with it?

A. Hens treated with PREEMPT are less likely to produce eggs that contain salmonella bacteria.

Q. How is PREEMPT used?

A. PREEMPT is mixed with water that contains a special buffer to revive the frozen "good" bacteria. Then the water-bacteria mix is sprayed as a coarse mist over newly hatched chicks after they arrive at the chicken house. As the birds groom their feathers, they swallow the moist droplets, allowing the beneficial bacteria to enter their bodies. These bacteria give the newly hatched chicks the same level of protection against salmonella that mature chickens have naturally.

Q. What is different about PREEMPT?

A. PREEMPT is unusual in several ways. First, scientists have known for years that if the bacteria from an adult chicken's intestines are fed to chicks, those bacteria give the chicks protection against salmonella colonization. But PREEMPT marks the first time that scientists have been able to precisely pinpoint which bacteria--out of the hundreds present in an adult bird's intestines--are the ones that specifically protect against salmonella. PREEMPT is the first product that contains *only* those bacteria known to protect against salmonella.

Also, PREEMPT is the first mixture of bacterial microbes ever approved by the Food and Drug Administration for use as an animal drug.

Q. How is PREEMPT made? Who developed it?

A. To produce PREEMPT, scientists at USDA's Agricultural Research Service (ARS) at College Station, Texas isolated the 29 bacteria and kept them alive and growing in a system known as a chemostat. MS Bioscience of Dundee, Illinois further developed the technology to make it possible to commercially manufacture PREEMPT.

USDA has patented the mixture. MS Bioscience has a license to market the product.