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# Poultry Pointers



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**Competitive Exclusion: A Potential Tool for Pathogen Control**  
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**Prof. of Food Science**  
 Food-borne illness has received much attention in the media during the past two to three years. Names of pathogenic bacteria, such as salmonella, listeria and campylobac-

ter, previously used only by scientists, are becoming household words. These bacteria are responsible for many of the food-borne illnesses in humans. Numerous foods can serve as carriers of these microorganisms, however, foods of animal origin, such as poultry, beef, swine and seafood, most frequently are involved.

The potential presence of pathogens is a major concern to people involved with the production, processing and marketing of these foods.

For years scientists have been investigating causes of and seeking controls for food-borne illness. Results of some of this research were reported in September, 1989, at an international conference on poultry pathogens (Colonization Control of Human Enteropathogens in Poultry).

Among the approaches discussed was competitive exclusion (CE). The goal of CE is to prevent colonization of pathogens within poultry. This is done by exposing newly hatched chicks to non-pathogenic bacteria commonly found in healthy poultry. After these bacteria become established or colonized in the new bird, sub-

sequent exposure to pathogens will result in reduced colonization by the "bad" bacteria.

Does this theory work? To date, the largest field trials involving CE have been conducted in the Netherlands. Scientists used 284 flocks (143 treated with microflora, and 141 untreated) involving 8 million broilers to determine if CE is effective in curbing salmonella colonization. The number of salmonella-positive flocks was reduced from 24 percent in untreated flocks to 15 percent in the CE flocks.

In another field study, 58 flocks (29 treated and 29 untreated, involving 200,000 broilers) were examined for the CE effect towards the pathogen campylobacter. The number of campylobacter-positive flocks was reduced from 45 percent to 31 percent. The scientists did find, however, that

cross contamination of animals and of carcasses beyond the production phase (i.e., transportation and processing) resulted in similar levels of pathogens on the final carcasses.

Although many questions remain regarding the CE theory, the above data indicate that this approach may be one tool in combating pathogen colonization in poultry. However, it must be realized that the control (not even mentioning total elimination) of bacterial pathogens is an extremely complex problem.

Is CE the answer to pathogens such as salmonella in poultry? No. Is it a partial answer? Perhaps. It is one approach among the many needed to find the answers to the problem of pathogen control. For example, at this conference it was suggested that CE, in conjunction

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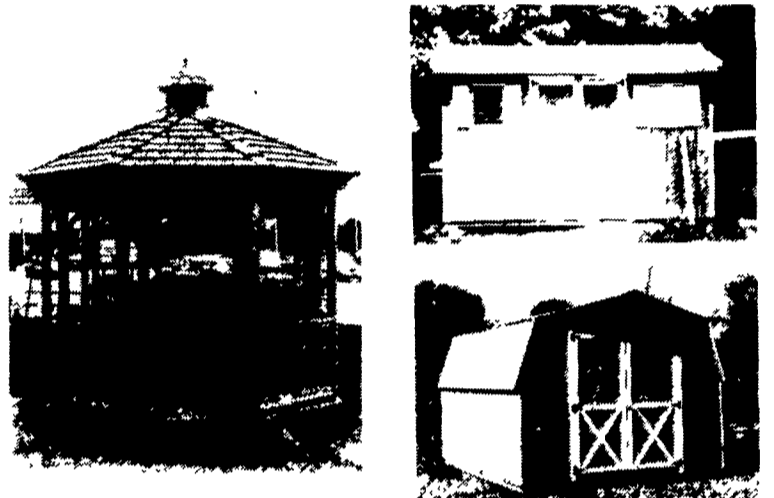
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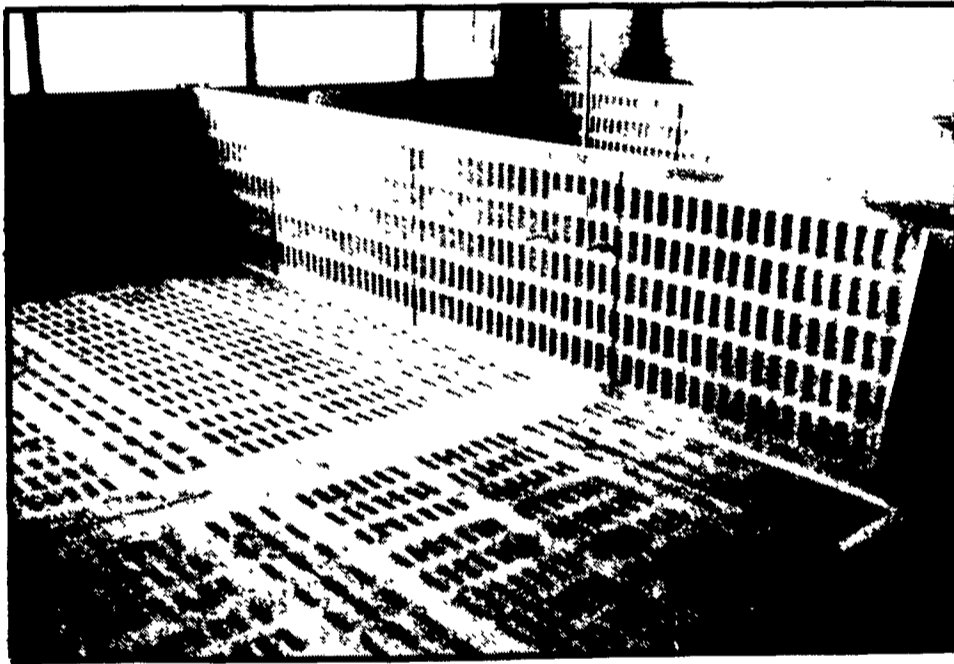
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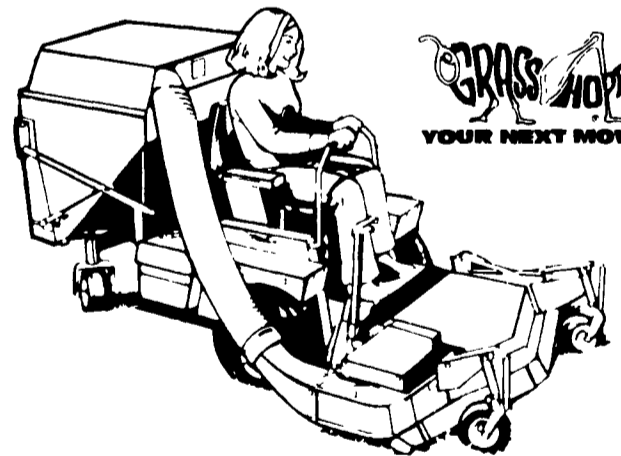
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