

Food Safety Fact Sheet



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Organic Pork and Food Safety

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Consumers and Organic Foods: Niche markets such as those for organic foods are rapidly increasing worldwide. Although consumers support development of technologies to improve animal health and meat quality, they have a negative view of what can be perceived as “unnatural” in the pork production system. Organic products are often purchased, because it is believed that they are healthier and safer than conventional products. Moreover, in the case of products of animal origin, additional reasons given for the purchase of organic products include the perception of reduced environmental impact and superior animal welfare. Marketers of organic animal products usually emphasize these issues, but often neglect food safety. Consumers are frequently not aware of food safety issues associated with organic products. There are many potential implications of the organic principles or standards for food safety, and as consumer interest and demand for organic products increase, a better understanding of the microbial food safety of organic production is essential.

Incidence of Foodborne Pathogens in Conventional Versus Organic Pigs: Extensive research on pre-harvest microbial food safety of conventional or intensive pork production is currently available. However, research in organic pork production is very scarce. Organic livestock production has experienced rapid growth in recent years. However, outdoor exposure in combination with prohibited use of antimicrobial and anti-parasitic treatments present a major animal health challenge. While the high concentration of animals in conventional indoor production systems favor pathogen dissemination, organic systems allow the exposure of animals to an outdoor environment and other species, facilitating introduc-

tion and maintenance of pathogens. However, studies conducted in several countries have shown no consistent difference between conventional and alternative/organic pig production systems regarding the incidence of bacterial foodborne pathogens, including *Salmonella enterica*, *Campylobacter jejuni*, *Campylobacter coli*, *Listeria monocytogenes*, and *Yersinia enterocolitica*.

Recent studies have examined antimicrobial resistant bacteria development and transmission on antimicrobial-free pork production systems (i.e., animals raised with no use of any antibiotic). Although the systems examined varied across studies, a general consensus exists that bacteria isolated from antimicrobial-free pigs are often less likely to be resistant to various antimicrobials compared to similar isolates obtained from pigs treated with antimicrobials in conventional or intensive production systems. However, alternative animal production systems have been strongly criticized by veterinarians, claiming that organic animals often are not treated properly when sick, because of the imposed restrictions by the organic standards. This issue has been the subject of intense debate due to its implication to the welfare of animals raised in organic systems.

The development and survival of pig parasites in the environment are dependent on a number of factors. Housing system, hygiene, and management practices are determinant for the transmission rate and the consequent risks due to parasitism. Endo- and ectoparasites appear to be the most common concern for organic pig producers. It has been shown that direct contact with soil, combined with restrictions of prophylactic use of anti-parasitic medication, in-

crease the risk of parasitic infections, particularly endoparasitic infections (e.g., *Toxoplasma gondii*, *Taenia solium*, and *Trichinella spiralis*, which cause toxoplasmosis, tapeworm infection or taeniasis, and trichinosis, respectively), in organic pigs. Several epidemiological studies have described the occurrence of higher frequency of these parasites in organic versus conventional pig production systems.

Conclusions & Recommendations: Consumer concern over the quality and safety of conventional food has intensified in recent years, and primarily drives the increasing demand for organically produced food, which is perceived as healthier and safer. Relevant scientific evidence, however, is scarce. Although there is an urgent need for more information related to health benefits and hazards of food products from both conventional and organic systems, generalized conclusions remain tentative in the absence of adequate comparative data. The number of studies on this topic is very small, and therefore, a thorough analysis is not currently possible. However, what should be made clear is that “organic” does not automatically equal “safe”. Different types of food safety risks are associated with the different pork production systems. Despite the

limited number of comparative pre-harvest food safety data from organic and conventional pork production systems, it is clear that organic production systems are associated with lower frequency of antimicrobial resistant bacteria. Available evidence does not support the hypothesis that intensive or conventional pork production has greater risk for bacterial foodborne pathogens, or that pigs produced in alternative or organic systems are at reduced risk of colonization with these pathogens. However, there is clear evidence that pigs raised in outdoor systems inherently are at higher risk of exposure to foodborne parasites.

The existence of opposing trends within the food market has given rise to some degree of polarization among different interest groups. However, it is critical to keep in mind that whatever pork production system is considered, the entire process from the pigs living in the farm to the pork product that is marketed and prepared in the home of the consumer should be analyzed and discussed in relation to the overall aims of pork safety.

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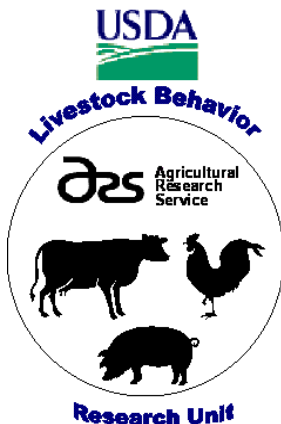
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