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## Food Facts For You!

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**Safety of Meat and Milk Derived from Animal Clones; Antibacterial Resistance – An Update; Food Safety Beliefs and Barriers to Safe Food Handling among WIC Clients; What’s On Your Mind? (making maple syrup, fiber in chocolate, make-ahead freezer meals, newsletter & press release ideas, cleaning the home (or office) refrigerator, online recipe source)**

### **Safety of Meat and Milk Derived from Animal Clones**

In January 2007, the **U.S. Food and Drug Administration (FDA)** announced that the agency has reviewed available scientific reports and concluded that meat and milk from some species of cloned animals – so far cattle, swine, and goats – and their non-cloned offspring is **safe to eat** and therefore it **approved consumption of meat and milk** from these animals. Since this is a new area and, to some, controversial, following are some frequently asked questions surrounding this topic (see References for background and further details).

**What are cloned animals?** Cloned animals are biological copies of adult animals. They are like identical twins of adult animals. At a cost of about \$20,000 each to produce, clones are used for breeding—not for food. It may be the descendants of cloned cattle, pigs, and goats that are potential sources for meat and milk.

**How long has cloning been around?** The technology to clone farm animals was developed more than 20 years ago, in the 1970s. Early methods of cloning in the 1970s involved a technology called embryo splitting, or blastomere separation. Embryos were split into several cells and then implanted into a surrogate mother for growth and development. But there were a limited number of splits that could be made, and only a few clones could be produced from one egg. The characteristics of the clone were also unpredictable because scientists were cloning from an embryo whose traits could not be predicted. Today’s method of cloning, somatic cell nuclear transfer (SCNT), has been around only since 1996.

**What is the process for cloning animals today?** The practice of cloning took on new meaning in 1996 with the birth of Dolly the sheep was the world’s first mammal cloned from an adult cell using a technique known as somatic cell nuclear transfer (SCNT). SCNT was more precise than earlier embryo-splitting methods of cloning and has become the method of choice for this process. Since the cloning of Dolly, this technology has been used to clone cattle, mice, goats, pigs, rabbits, and even a cat. SCNT can be used to make an unlimited number of copies of one animal.

The SCNT process starts with an unfertilized egg, or oocyte. Scientists remove the oocyte’s nucleus, which contains the egg’s genes, or hereditary “instructions.” What

remains after removal of the nucleus is a cell that contains nutrients essential for embryo development and other cellular machinery waiting for a new set of instructions.

A somatic cell from the animal to be cloned—or in some cases, just the cell's nucleus—is cultured in an incubator and then injected under the coating of the unfertilized oocyte. (Somatic cells are any cells of the body except sperm and eggs.) Stimulated by a mild electrical pulse, the oocyte cytoplasm (everything in the cell but the nucleus) and the genetic material from the donated somatic cell combine. If fusion is successful, the resulting fused cell divides just as if it were a fertilized egg and produces an embryo. The embryo is placed in the uterus of a surrogate mother and, if development proceeds normally, an animal clone is born. The new animal is genetically identical to its 'parent'; sort of like producing an identical twin to an adult.

**Why would you want to clone an animal?** Proponents of livestock cloning see it benefiting consumers, producers, animals and the environment. Some argue that cloning offers tremendous advantages to farmers whose livelihoods depends on selling high-quality meat and dairy products. Cloning gives these farmers the ability to preserve and extend proven, superior genetics. Farmers can select and propagate the best animals—beef cattle that are fast-growing, have lean but tender meat, and are disease-resistant; dairy cows and goats that give lots of milk; and sheep that produce high-quality wool. Through cloning, it would be possible to predict the characteristics of each animal, rather than taking the chance that sexual reproduction and its gene reshuffling provide. Cloning also has the potential to eliminate some animal diseases by cloning a naturally-resistant animal.

**How are cloned animals different from traditionally bred animals?** Adult cloned animals – plus their non-cloned offspring – are the same as traditional, non-cloned animals born to other traditional, non-cloned animals. Cloned animals used for meat and milk have only traditional animal genes. They have a mother; they do not develop in a test tube or incubator. In addition, clones are used to reproduce non-cloned offspring that also have only traditional animal genes.

**Is a cloned animal the same as a genetically modified organism, or GMO?** There is nothing genetically modified because cloned animals contain only their own species' traditional genetic material. There is nothing genetically added or subtracted either. Cloned animals and their non-cloned offspring are not genetically modified organisms because GMOs (aka, genetically engineered organisms or transgenic organisms – here, transgenic animals) all contain deliberately added foreign genes.

**Why are people concerned about cloning?** The many reports of what may possibly go wrong with animal clones have proved to be not much more than exciting scientific fiction when compared to the rather dull findings that cloned animals are the ordinary animals people have raised and consumed for millennia.

Also, some organizations claim that animal cloning is unnatural human intervention, but that bridge was crossed many centuries ago. For millennia, people have closely controlled domestic animal reproduction to develop specific animal breeds for companionship, food, and work. Today, all breeds of cattle, dogs, cats, pigs, horses, chickens, plus all other domestic animals are the direct result of intensive, unending, human intervention using selective animal breeding programs. None of today's domestic animal breeds would ever have developed using only natural selection and random breeding. There would be no Holstein cows for superior milk production or Angus cattle

for high-quality beef. There most certainly would be no Siamese cats or Chihuahua dogs if humans had let “nature take its course.”

**What do experts feel about this decision? Dr. Gary Weaver**, Director of the Program on Agriculture and Animal Health Policy, Center for Food, Nutrition, and Agriculture Policy (CFNAP) at the University of Maryland, thinks that the decision that meat and milk from cloned cattle, swine, and goats is safe to eat is a good one. FDA experts have carefully studied all available scientific reports about animal cloning for more than five years. Dr. Weaver acknowledges that concerns have been raised about the safety of meat and milk from clones, but the FDA reported in a new scientific publication that meat and milk from cloned animals and their non-cloned offspring are indistinguishable from those of traditional animals consumed by Americans every day. In fact, the only way to positively identify a clone is to certify that it has virtually the same genetic material as another animal that is not its identical twin. The FDA therefore concluded that food products from cloned cattle, swine, and goats are as safe for people to eat as those from non-cloned animals.

**Are there any benefits to cloned animals over traditionally bred livestock?** Cloning allows livestock producers to reduce, by years, the decade or so now required to get superior animals to market. For instance, USDA prime beef – currently about three percent of all beef steaks – could become our only grade of beef – and at affordable prices! Also, fewer superior dairy cows could produce the same quantity of milk while making less animal waste.

**What is the future of cloning of human-food animals?** Few cloned animals will actually be consumed by Americans any time soon, because they are too expensive to eat. For now, all cloned animals will likely be breeding stock that pass along their superior traits to their non-cloned offspring; it is these non-cloned offspring which will, in time, end up on American dinner tables.

References:

**Cloning: Revolution or Evolution in Animal in Animal Production?** FDA Consumer May/June 2003. [http://www.fda.gov/FDAC/features/2003/303\\_clone.html](http://www.fda.gov/FDAC/features/2003/303_clone.html)

**Cloning: A Webliography** (Michigan State University) <http://www.lib.msu.edu/skendall/cloning/>

**Comments by Dr. Gary Weaver** [http://www.aaaa.com.au/news/n\\_news-1937.asp](http://www.aaaa.com.au/news/n_news-1937.asp)

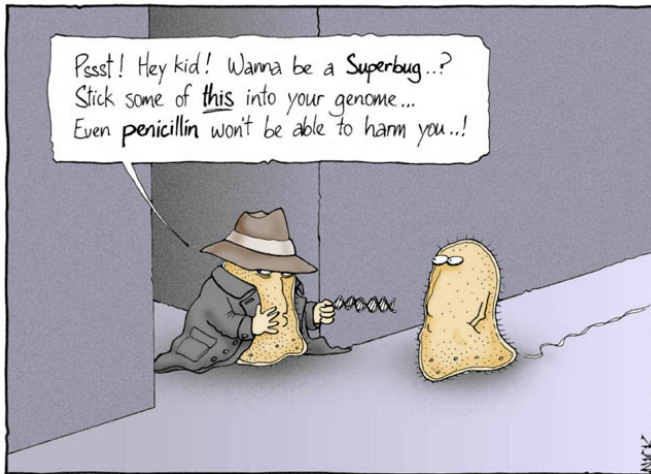
### **Antibiotic Resistance – An Update**

*Antibacterial cleaning products abound, from soaps and lotions to kitchen and bathroom cleaners. An update on these products follows.*

**What is antibacterial resistance and why is it important?** Antibacterial resistance occurs when bacteria change in a way that reduces or eliminates the effectiveness of antibiotics. These resistant bacteria survive and multiply – causing more harm, such as a longer illness, more doctor visits, and a need for more expensive and toxic antibiotics. Resistant bacteria may even cause death.

Bacteria are constantly growing and changing in response to their environment. Years ago, scientists thought that harmful pathogens such as *Salmonella* and *E. coli* O157 would not survive in acidic foods like orange juice or apple cider, so these foods could be safely consumed without pasteurization. Now, however, we know that these harmful bacteria have adapted and some types of *Salmonella* and *E. coli* O157:H7 can survive in

acidic juices, and, as a result, there have been instances of foodborne illness outbreaks linked to unpasteurized orange juice and unpasteurized apple cider.



It was on a short-cut through the hospital kitchens that Albert was first approached by a member of the Antibiotic Resistance.

A similar situation happens with the development of antibacterial resistance. If pathogenic bacteria are repeatedly exposed to antibiotics (antibacterial agents), then the bacteria can change their genetic material (their genome) and develop resistance to particular drugs. This makes it difficult, and sometimes impossible, to treat an illness in an animal or human with antibiotics; they simply no longer work as intended. Hospitals are seeing an increasing number of antibiotic-resistant strains of bacteria, sometimes referred to as 'super bugs'. There is plenty of evidence

that the antibacterial products that we use, often on a daily basis, are allowing 'super bugs' to develop.

**What ingredients are used in antibacterial products?** **Triclosan** is an antibacterial ingredient used in many hand and body wash products, and in toothpaste. In antibacterial liquid soaps, it is regulated by the FDA as an over-the-counter drug. Triclosan damages the cell walls of bacteria, slowing their growth. Other antibacterial ingredients found in consumer products include **alcohol** (found in instant hand-wash gels like Purell) and **hydrogen peroxide** (found in some toothpaste and dish and laundry soaps) – these types of products have not been shown to be a problem. Triclosan is also found in sponges, tooth brushes, cutting boards and dishtowels. The EPA recently ordered the manufacturers of household items to revise product claims to make it clear that the antimicrobial protection inhibits the growth of microorganisms on the product ONLY; it does not kill germs on surfaces. See *Common Sense Talk about Antibacterial Products* [http://www.wisc.edu/foodsafety/consumer/fact\\_sheets/ABClean.pdf](http://www.wisc.edu/foodsafety/consumer/fact_sheets/ABClean.pdf)

**Should consumers be switching to antibacterial soaps and cleaners?** In general, the answer to this question is NO. Washing with plain soap and water has been shown to be as effective in removing germs as using antimicrobial cleaners. And there is heightened concern over the increase in antibiotic resistant bacteria due to the proliferation of products containing antimicrobial compounds. Antibacterial products might be warranted in medical care settings and where extra protection against bacteria is needed.

**Who regulates household products containing antibacterial agents?** Soaps and lotions containing antibacterial ingredients are regulated by the FDA as a drug if they claim to "kill germs" or "reduce infection". Soaps and lotions containing antimicrobials, but making no therapeutic or medical claims, are considered cosmetics and need not be proven to be effective. Household cleaners intended to kill germs on surfaces typically say "disinfects", "kills bacteria" or "sanitizes". These cleaners are regulated by the

Environmental Protection Agency (EPA). Antimicrobials for inanimate objects or surfaces are considered pesticides by EPA.

**Tufts University** recommends the following 10 steps to keep antibacterial compounds in check and help prevent antibiotic resistant bacteria from developing:

1. **Use regular hand soap to wash your hands and regular dishwashing liquid for kitchenware rather than cleaning agents containing antibacterial chemicals.** Soap gets rid of bacteria without encouraging the development of resistant bacteria. And hot water works better than cold to cut through grease and get to bacteria faster.
2. **Use bleach- and chlorine-containing cleaners if you want to disinfect (get rid of bacteria on) kitchen countertops, floors, etc.** These substances are not antibacterial per se so they won't encourage the growth of resistant bacteria.
3. **Wash your hands-often.** Frequent handwashing is the best way to get rid of bacteria.
4. **Use products containing the antibacterial ingredient triclosan only when someone in your household is particularly vulnerable-** when recuperating from a long illness, or when just home from the hospital.
5. **Wash fruits and vegetables thoroughly.** Fruits and vegetables may carry bacteria so be sure to wash them thoroughly.
6. **Take care with animal foods.** Animal foods are often contaminated with bacteria, so take care to handle meats, eggs and poultry to avoid contamination of counters, utensils and other food products.
7. **Don't be impressed by household products that are advertised as containing antibacterial agents-** cutting boards, high chairs, toothbrushes, toys and other items. The antibacterial agents are invariably there to protect the plastic or other material from decay, not to destroy bacteria on the surface of these materials.
8. **Don't talk your doctor into giving you an antibiotic for a viral infection such as the flu.** It won't work and it may help the spread of resistant bacteria.
9. **Don't stop a course of antibiotic treatment in the middle.** You may feel better before you finish the vial of pills, but that doesn't mean you have completely eradicated the bacteria from your system. And if they are still growing inside you, that means they have a better chance to develop resistance to the drug you are taking.
10. **Never share your antibiotics with family and friends.** You don't know the dose they may need and even whether they need any, so you are only encouraging the bacteria in their systems to develop resistance.

The Centers for Disease Control has some excellent resources in this area <http://www.cdc.gov/drugresistance/> if you are interested in finding out more about this important human-health issue.

### **Food Safety Beliefs and Barriers to Safe Food Handling among WIC Clients**

Researchers at the Stempel School of Public Health in Miami, Florida have published results of a study that sheds light on the beliefs and barriers to good food safety practices among WIC clients. The research team conducted five focus groups in Miami-Dade County in 2004. A total of 32 WIC clients participated, ranging in age from 18 to 55 years of age. The racial/ethnic distribution was: 53% non-Hispanic/non-Haitian Blacks, 22% Haitian Blacks, 19% Hispanic Whites, 3% Hispanic Blacks and 3% non-Hispanic Whites. Of the participants, 19% had not graduated from high school, 37.5% had graduated from high school, 31% had at least 1 year of education beyond high school and 13% had graduated from college.

The focus group discussion was based on the Health Belief Model and probed participants' regarding attitudes and beliefs regarding the seriousness of foodborne illnesses. Participants were then asked to read the Partnership for Food Safety Education's Fight BAC! pamphlet [www.fightbac.org](http://www.fightbac.org) and to discuss each of its four main content areas. They discussed which recommendations they and their peers generally followed, which they did not, and barriers to following the recommendations. Participants also discussed what would motivate WIC clients to practice good food safety behaviors.

The main findings from this study include:

- WIC clients did not perceive foodborne illness as a major concern and participants were unaware of the importance of safe food handling practices at home.
- WIC clients were unaware of the risk to pregnant women and infants – individuals in the at-risk group for increased risk of severe complications from a foodborne illness.
- The food safety practice identified as hardest to follow was using a cooking thermometer.
- Refrigerating hot leftover foods within 2 hours and in shallow containers were new concepts to most participants and were not widely practiced.
- Holding baby bottles with formula out of the refrigerator for long periods of time was reported as a problem.
- The primary factors that would motivate change were linked to their babies' health and well being.

M.J. Trepka, et al. 2006. Food Safety Beliefs and Barriers to Safe Food Handling among WIC Program Clients, Miami, Florida. *J. Nutr. Educ. Behav.* 38:371-377.

#### **Suggested resources for Wisconsin educators working with WIC clients include:**

- Fight BAC! downloads [http://www.fightbac.org/component/option,com\\_docman/Itemid,83/](http://www.fightbac.org/component/option,com_docman/Itemid,83/)
- Food Safety for Moms to Be – Educator Tools <http://www.cfsan.fda.gov/~pregnant/tools.html>
- FDA's Information for Pregnant Women <http://www.cfsan.fda.gov/~dms/wh-preg.html>
- Information on Infant Formula <http://www.cfsan.fda.gov/~dms/wh-inf.html>
- WIC Topics A-Z: Food Safety [http://www.nal.usda.gov/wicworks/Topics/foodsafety\\_handling.html](http://www.nal.usda.gov/wicworks/Topics/foodsafety_handling.html)
- Listeriosis and Pregnancy: What is Your Risk?  
[http://www.fsis.usda.gov/Fact\\_Sheets/Listeriosis\\_and\\_Pregnancy\\_What\\_is\\_Your\\_Risk/index.asp](http://www.fsis.usda.gov/Fact_Sheets/Listeriosis_and_Pregnancy_What_is_Your_Risk/index.asp)
- What you Need to Know about Mercury in Fish and Shellfish: Advice for Women and Children <http://www.cfsan.fda.gov/~dms/admehg3b.html>
- FDA: Women's Health Issues <http://vm.cfsan.fda.gov/~lrd/advice.html>

#### **What's On Your Mind?**

**Making maple syrup.** Bridgett Mouchon (Green County) asked about resources for preparing and processing maple syrup. It won't be long at all before many individuals in this state will be gearing up for this season. The best, most comprehensive reference is the North American Maple Syrup producer's manual; sadly no longer available online but it can be ordered from Ohio State: <http://ohioline.osu.edu/lines/contacts.html>  
Other excellent resources in this area include:

- Links from the Wisconsin FIRST web site on **Processing Maple Syrup** [http://www.wisc.edu/foodsafety/index2\\_FoodPres.htm](http://www.wisc.edu/foodsafety/index2_FoodPres.htm) (including a fact sheet *Focus on Food Safety When Making Maple Syrup*)
- How to Tap Trees and Make Maple Syrup (University of Maine) <http://www.umext.maine.edu/onlinepubs/PDFpubs/7036.pdf>

**Fiber in chocolate?** Yes! If you needed a reason to consume **dark chocolate** this Valentine's season, consider that some types of dark chocolate have quite a few grams

of fiber per serving. At our recent program area conference, **Nan Baumgatener** (Fond du Lac County) offered to share a bar of dark chocolate at dessert one meal [No, it wasn't breakfast!] Being the educators that we all are, we took the time to peruse the food label on the chocolate bar. **What we found was very interesting!** Dark chocolate (60-72% cocoa solids) contains, on average, 4-6 grams of fiber per serving (~40 grams). Milk chocolate contains much less fiber, 1 gram or less per serving. That chocolate contains fiber perhaps shouldn't have been so surprising. Chocolate is made from cocoa beans (a plant material) and it is the dry powder that is left after the fat is removed (the cocoa solids) that is a key ingredient in all types of chocolate. The high level of cocoa solids in some types of dark chocolate contributes fiber content to these products. And dark chocolate also contains heart-healthy phytochemicals. My nutrition colleagues would remind me that these grams of fiber are tied to a food that is very high in fat (over 50% calories from fat). But if you are going to indulge this Valentine's season, consider **dark chocolate** for some added heart-healthy benefits.

**Make ahead freezer meals.** **Mary Hoeft-Leithold** (WNEP- La Crosse County) wanted information on making your own freezer meals. Here are some ideas that I shared with her:

- Make ahead and freeze <http://lancaster.unl.edu/food/ftnvdc99.htm>
- Cook once, eat twice <http://lancaster.unl.edu/food/ciqf.htm>
- Freezing cooked foods <http://lancaster.unl.edu/food/ciq-freezing-techniques.htm>
- Freezing prepared foods (University of Georgia)  
<http://www.uga.edu/nchfp/publications/uga/FreezingPreparedFoods.pdf>

Another handy reference is the freezer storage chart, found in WNEP resources (*Keeping Food Safe*) or online: <http://www.oznet.k-state.edu/humannutrition/hrap/storage/stochart.htm>

**Looking for newsletter or press release ideas?** If you are looking for newsletter or press release ideas, I encourage you to consider both the **Food Facts archives** and the **UWEX News Release archives**.

- Food Facts archives: [http://www.wisc.edu/foodsafety/index2\\_ff\\_sub.htm](http://www.wisc.edu/foodsafety/index2_ff_sub.htm) (to be updated this spring to be even more user-friendly)
- News release archives <http://www.uwex.edu/ces/news/>

Each of these resources could provide topics or content that might meet your needs. If you need help updating any archived information, please let me know.

**Cleaning the home (or office) refrigerator.** **Jane Jensen** (Sheboygan County) asked about resources for an article on cleaning the home (or office) refrigerator, to include a food storage chart. What a great idea to start off a new year with a clean refrigerator! Here are the ideas that I shared with Jane:

- Cleaning up the Office Refrigerator <http://www.foodsafety.gov/~fsg/fs-mon01.html> (University of Nebraska)
- Test Your Home Refrigerator Food Safety Savvy (quiz) <http://lancaster.unl.edu/food/ftsep-oct05.htm> (University of Nebraska)
- Be Cool, Chill Out! <http://www.foodsafety.gov/~fsg/fs-mon01.html> (posters, fact sheets and activities tied to the Fight BAC! campaign)
- Spring Clean your Way to a Safer Kitchen (a Fight BAC! resource) [http://www.fightbac.org/component/option,com\\_docman/task,cat\\_view/gid,29/Itemid,83/](http://www.fightbac.org/component/option,com_docman/task,cat_view/gid,29/Itemid,83/)

My favorite food storage charts are found online: <http://lancaster.unl.edu/food/storeitchart.pdf> or here <http://www.foodsafety.gov/~fsg/f01chart.html> and in the WNEP booklet *Keeping Food Safe*.

**Looking for a special Valentine's Day recipe?** Check out the Recipe Source. I hope you consider book-marking this site as a great place for recipe ideas, including recipes for Holidays (a few Valentine's Day recipes included) <http://www.recipesource.com/>