



Meat Messenger

North Dakota State Meat and Poultry Inspection Program

2014 Quarter 4

Hunting licenses at lowest level since 1980

Although the 2013-14 winter was not particularly snowy, brutally cold temperatures reduced fawn production and deer survival rates, according to the North Dakota Game and Fish Department (NDG&F).

The 2014 regular gun season opens Nov. 7 with only one gun license per hunter. NDG&F allocated 48,000 deer tags for 2014 season, 11,500 fewer than in 2013. The badlands units will not be open to antlerless mule deer hunting. Mule deer populations are rebounding, 19 percent higher than last year, but 7 percent below long-term average. This is the second year

that the spring mule deer index was higher than the previous year.

Pronghorn antelope numbers are recovering since the 75 percent decline following the winters of 2008-11. The numbers are sufficient to support the first pronghorn licenses allocated since 2009, with 250 licenses issued in the 4A unit, the very southwest corner of the state.

Deer processing can be lucrative business for meat processors, but with fewer tags being issued, the demand for custom deer processing will probably drop again this year. Some cus-

tom processors have seen a 75 percent reduction in deer processing in the last few years. It is hoped winter conditions will be moderate, and deer populations will recover rapidly, so deer processing will be the business it once was.

Source: North Dakota Outdoors Magazine, August-September 2014, Number 2, Volume LXXVII, published by the North Dakota Game and Fish Department. The full magazine may be found at <http://gf.nd.gov/magazines/august-september-2014>

Small plants have access to compliance guidance documents

FSIS has issued compliance guidance on a range of regulatory issues for small and very small plants through various resource documents. These guidance documents do not set regulatory requirements. However, they provide information to plant owners and operators on how they can meet regulatory requirements to ensure food safety.

The list includes: Compliance Guides Available for Comment; Sanitation Guidance for Beef Grinders; Sanitation Performance Standards; Escherichia coli, including STEC, Sampling Beef Products, i.e. trim and slaughter and pre-harvest management for reducing E. coli 0157:H7 shed-

ding in cattle; HACCP; Labeling; Ready to Eat Products; Residue; & Salmonella to mention several guidance materials. Videos are also available with some of these guides.

For a complete listing of these compliance guidelines, visit [www.fsis.usda.gov/Regulations & Policies/Compliance Guides Index/index.asp](http://www.fsis.usda.gov/Regulations%20&%20Policies/Compliance%20Guides%20Index/index.asp).

Assistance or copies can also be obtained by contacting NDDA Meat & Poultry Inspection Program Scientific Information Coordinator, Nathan Kroh (701)328-4767, or your area meat and poultry inspector.

What would you like to read in the next issue?

The Meat Messenger is your newsletter. If you like the content, please feel free to share this issue with your employees, your livestock producers and customers. We welcome any questions, comments, or suggestions for future topics. Please contact **Nathan Kroh** at nkroh@nd.gov or 701-328-4767 or **Julie Nilges** at jnilges@nd.gov or 701-204-3248.

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Regulation Reminder

Administrative Rule- Title 7- Article 13

7-13-03-02 Required Labeling. Any meat or meat food product offered for sale or barter must bear an appropriate label as provided in Title 9, Code of Federal Regulations, Parts 317 and 381.

History: Effective August 1, 2000; amended effective January 1, 2004.

General Authority: NDCC 36-24-04

Law Implemented: NDCC 36-24-04

The essential details that a proper label will require are:

- 1) The common name of the product or a truthful descriptive designation.
- 2) An ingredients statement if fabricated with two or more ingredients.
- 3) The name and place of business of the manufacturer, packer, or distributor for whom the product is prepared.
- 4) An accurate statement of the net quantity of contents.
- 5) An official inspection legend (if processed under full state or federal inspection).
- 6) Special handling statements: "Keep Refrigerated", "Keep Frozen" or such similar statement.
- 7) Safe Handling Instructions: Bearing the statement "This product was prepared from inspected and passed meat and/or poultry. Some food products contain bacteria that could cause illness if the product is mishandled or cooked improperly. For your protection, follow these safe handling instructions."

The graphic display must contain the statement and the following picture for all products that have not undergone a process that would render them ready-to-eat.

Safe Handling Instructions

This product was prepared from inspected and passed meat and/or poultry. Some food products may contain bacteria that could cause illness if the product is mishandled or cooked improperly. For your protection, follow these safe handling instructions.

- Keep refrigerated or frozen. Thaw in refrigerator or microwave.
- Keep raw meat and poultry separate from other foods. Wash working surfaces (including cutting boards), utensils, and hands after touching raw meat or poultry.
- Cook thoroughly.
- Keep hot foods hot. Refrigerate leftovers immediately or discard.

Researchers hone in on salmonella's "Achilles' heel"

By Lisa M. Keefe, Meating Place

Superman had one. So did the Wicked Witch of the West. And salmonella, apparently, also has one substance that could prove its downfall.

Researchers at Ohio State University think fructose-asparagine could be a key to rendering salmonella far less potent and destructive, according to a news release from the university.

The nutrient is salmonella's sole food source in an inflamed intestine. Blocking activation of one of five genes that transport it to salmonella cells could help fight infection, according to Brian Ahmer, associate professor of microbial infection and immunity at Ohio State and lead author of the study. Without access to fructose-asparagine, salmonella becomes 1,000 times less effective at sustaining disease. The new research is published in the peer-reviewed open-access journal PLOS Pathogens.

The nutrient is composed of a sugar and amino acid stuck together. "It has never been discovered to be a nutrient for any organism," Ahmer said in the university's news release.

Ahmer and colleagues found the nutrient by first identifying the genes that salmonella requires to stay alive during the active phase of gastroenteritis, when the inflamed gut produces symptoms of infection. The research team realized that the Salmonella genes they found resembled genes in other bacteria with a similar function – transporting the nutrient fructose-lysine into E. coli.

"That was one of the big surprises: that there is only one nutrient source that is so important to salmonella. For most bacteria, if we get rid of one nutrient acquisition system, they continue to grow on other nutrients," Ahmer said. "But without fructose-asparagine, [salmonella is] really unfit."

The co-authors on the research included 16 additional researchers at Ohio State, the Research Institute at Nationwide Children's Hospital, and University of Florida. The work was supported by grants from the National Institute of Allergy and Infectious Diseases and the National Institute of General Medical Sciences.

<http://www.meatingplace.com/Industry/News/Details/51247>

Cleaning or replacing your plastic cutting board

After scraping, scrubbing with soapy, very warm water and rinsing with clear clean water, plastic cutting boards should be sanitized with a chlorine-based sanitizer. An exposure time of a minimum of 10 seconds with a solution of bleach and water can be used (one tablespoon of bleach per gallon of water- has a shelf life of a week or two). Always follow label instructions for concentration, minimum temperature and pH of the solution. The last, but a very important, step is air drying, completely eliminating moisture that bacteria needs for survival.

Chapter 416.3 of Title 9 of the Code of Federal Regulations states "Equip-

ment and utensils used for processing or otherwise handling edible product or ingredients must be of such material and construction to facilitate thorough cleaning and to ensure that their use will not cause the adulteration of product during processing, handling, or storage. Equipment and utensils must be maintained in a sanitary condition so as not to adulterate product."

The Federal Food Code 4-501.12 requires "surfaces such as cutting blocks and boards that are subject to scratching and scoring shall be resurfaced if they can no longer be effectively cleaned and sanitized, or discarded if they are not capable of

being resurfaced."

When should cutting boards be replaced? When one observes stains, grooves with dark discoloration, chips, fraying or cracks that are irreparable. All signs of excessive wear need to be addressed before insanitary conditions or product adulteration occur.

More information can be found at www.fsis.usda.gov under Food Safety Education, and ND Meat-Inspection at www.nd.gov/ndda/files/resource/FacilityRequirementsHandbook.pdf, and North Dakota Food Code, Chapter 33-33-04 at www.ndhealth.gov.

History of cattle production in North Dakota

The first cattle brought into what is now North Dakota were oxen and milk cows used at the trading posts. Only 800 head of cattle were reported in Dakota Territory in 1860, but that number jumped to 70,000 in 1889 and 346,000 in 1890, a year after statehood.

The rough terrain of southwestern North Dakota with good summer forage, little snow cover and brushy ravines for winter sheltering lent itself to livestock operations.

Large, Texas-based cattle companies began grazing cattle in North Dakota in the early 1880's. This led to a boom in Medora and Dickinson which became major shipping points to eastern states. In 1886, a very dry summer was followed by a harsh long winter that killed about 75 percent of the cattle in the region. The landowners started to save grazing lands for winter feed stores. Counties and townships were developed, and smaller ranches and farms began to populate the area with smaller herds of 20 to 40 or more head. These changes forced the larger, free-range cattle outfits to sell out.

Most early settlers made a living by both cattle and crop production. Proximity to the railroads was the main factor in determining how many cattle were raised. Homesteads closer to the railroads could get wheat to the rails, while cattle were easier to drive further distances to the rail pickup sites.

Record high heat, record low rainfall, and devastating grasshopper populations destroyed crops and grasslands in the 1930's. The Agricultural Adjustment Administration bought more

Table 1. Cattle Numbers and Prices and Number of Farms in North Dakota, 1870 to 2008.

Year	All Cattle and Calves (Jan.)	Beef Cattle Prices (per hwt)	Beef Cows that Calved (Jan.)	Milk Cows	Number of Farms	Number of Cattle Operations
1870	2,000					
1880	70,000					
1890	346,000					
1900	561,000				45,000	
1910	662,000	\$ 3.90			74,400	
1920	1,335,000	\$ 6.70	152,000		77,700	
1930	1,307,000	\$ 6.10	90,000	521,000	80,900	
1940	1,313,000	\$ 6.80	120,000	484,000	74,500	
1950	1,495,000	\$22.00	332,000	375,000	66,000	
1960	1,758,000	\$19.40	648,000	277,000	56,000	
1970	2,110,000	\$26.40	995,000	137,000	45,500	29,000
1980	2,000,000	\$61.10	962,000	93,000	40,000	21,000
1990	1,650,000	\$76.00	855,000	85,000	33,500	17,000
2000	1,880,000	\$72.20	970,000	48,000	30,800	13,000
2008	1,810,000	\$83.30	922,000	28,000	32,000	10,500*

From: National Agricultural Statistics Service, USDA, 2009
http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/
 *2007

than a million head of cattle for \$15 to \$20 per head. The federal government also bought over a million acres of "sub marginal" land in North Dakota. They built stock ponds and re-seeded the pastures, developing the national grasslands to which they gave grazing rights to nearby landowners. The Soil Conservation Service still leases this land for grazing today.

Before the 1950's, most cattle were used for draft, meat and milk. Early Herefords were originally a triple-purpose, English breed later bred solely for beef production. Animals used for beef only tended to be stocky, fat and early maturing. Demand for leaner meat in the late 1960's, led to the introduction of breeds with less

fat and higher dressing percentages.

Cattle are raised in every North Dakota county. As of 2014, the state ranked 15th in overall cattle numbers and 13th in calf crop. Livestock production brought in \$1.05 billion in 2013.

This article is derived in large part from History of Cattle Production in North Dakota by Janet Patton, J. (2007). North Dakota State University Central Grasslands Research Extension Center, Streeter. The entire article is available at http://www.ag.ndsu.edu/archive/streeter/2007report/beef_history/History_Beef_central.htm

Chlorine sanitizer: don't waste money on too much bleach

Chlorine-based sanitizing solutions are effective and relatively inexpensive, but have their limitations. Chlorine solutions do not kill bacteria on dirty surfaces. They should be used at optimal temperatures and pH ranges, and in proper concentrations.

Meat processors often use sodium hypochlorite (liquid bleach) for a sanitizer. The chlorine ion is an oxidizing agent, which kills bacteria, but corrodes some equipment. Chlorine is not an effective sanitizer against excessive organic loads; therefore, cleaning residual fats, proteins and carbohydrates prior to sanitizing is an important step. Only clean surfaces can be sanitized well.

Preparing food contact surfaces for sanitizing requires removal of food residues with warm water. Hot water (over 115°F) can "cook" proteins and make them difficult to remove. Detergent with very warm water is used to thoroughly remove grease. Most detergents are alkaline or high pH, so detergent residues can raise the pH level of your sanitizing solution if the detergent is not rinsed off prior to sanitizing. Chlorine solutions work best at pH 5-6. If the pH falls below 4, toxic chlorine gas may be released. Adjusting the pH of your sanitizing solution to maintain optimum pH (5-6), will keep your sanitizer as effective and as safe as possible.

USDA requires a concentration of chlorine ions between 50 and 200 parts per million. Test strips are available to check concentration levels. When mixing the solution, refer to the

manufacturer's suggestions or follow the table below.

Notice that 5 tablespoons of bleach are needed for 10 gallons of water. An impatient employee may pour one to two cups of bleach in the sink, more than 3 times the bleach necessary. The smell can be nauseating, gases can irritate eyes, and the solution can irritate skin. Excessive bleach does not necessarily sanitize better and the bleach must be rinsed, because it will leave a hazardous residue if air dried onto food contact surfaces. USDA requires all chlorine sanitizers over 200 ppm concentrations to be rinsed with potable water. Even at proper concentrations, chlorine can corrode stainless steel and rust any susceptible materials, especially if the chlorine solution is over 120°F. Chlorine is most effective at 105-120°F.

Sanitizers do not work instantaneously, so for optimal results, strive for one to five minutes of surface contact. Allow the surface to air dry because the surface can be re-contaminated if dried with rags or paper towels. The most effective and economical sanitizers are mixed and used according to the container label. Excessive sanitizer is hard on equipment, employee health and the bottom line. More is not better.

Source: "Effective use of chlorine in food processing environments" by Shelly McKee, Auburn University Department of Poultry Science (2004), available at www.ag.auburn.edu/~curtipa/virtuallibrary/pdf/20041012mckeeeffectivechlorine.pdf.

Desired chlorine concentration	Amount of chlorine bleach (5.25% sodium hypochlorite) needed	Amount of water
50 ppm	¼ teaspoon	1 gallon of water
50 ppm	1 tablespoons (½ ounce)	4½ gallons of water
50 ppm	2½ tablespoons	10 gallons of water
100 ppm	1½ teaspoons	1 gallon of water
100 ppm	2 tablespoons (1 ounce)	4½ gallons of water
100 ppm	5 tablespoons (2½ ounces)	10 gallons of water
200 ppm	3 teaspoons or 1 tablespoon	1 gallon of water
200 ppm	4 tablespoons (2 ounces)	4½ gallons of water
200 ppm	10 tablespoons (5 ounces)	10 gallons of water

Save money with proper vacuum packaging

By Nathan Kroh

Most processors use vacuum packaging because it is an effective oxygen barrier and better displays the product. The occasional leaking package, however, is a problem for retailers, since the product spoils or freezer burns quickly and is visually unappealing on the shelf.



Seal failure is a common reason for package leakage. Seals often fail because the seal bar is too hot or not hot enough to create a tight seal. Excess food particles can interfere with the seal and create a slow leak. If the seal bar material is cracked, insufficient vacuum or sealing may result. It is important to maintain the vacuum machine.

Here is a common quality assurance practice for checking for potential seal or film leakage.

- Pump air into a freshly sealed package with a clean needle used to inflate basketballs. (Use filtered air or discard the package contents).

- Holding a finger over the hole made by the needle, submerge the package in clean water. If the package bubbles, it will leak eventually.
- Adjust settings on the vacuum packing machine or use thicker bags.

For soft products to be sold quickly, cheap thin bags may be appropriate, but will not hold up to freezing well. For making large batches of product infrequently, thicker bags with a greater oxygen barrier will hold frozen product better. Buy small packs of film and experiment with the machine and various meat products. Be sure to

add padding around bone-in products, such as whole hams. Jerky can be sharp or pointy, so lay strips flat and use an appropriately thick bag.

Vacuum packaging machines use a gauge to measure the vacuum on the package. Occasionally the gauge wears out or is measuring the vacuum on the pump, not the package. If this happens, packages may appear to be sealed, but will probably not hold the vacuum as long as hoped. Gauges are relatively easy to change, and the vacuum settings can be easily adjusted.

The right film and correct vacuum settings will increase product shelf life and appearance. Extra labor, repackaging supplies and product spoilage caused by improper vacuum sealing cost money.

Take time to ensure that packaging is properly done, and profits will likely increase.

Source: "The three most common errors processors make with vacuum packaging" by the Meatingplace editors (2009) <http://www.meatingplace.com/Industry/TechnicalArticles/Details/10077>

Consumer group asks for ban on "natural" in meat labeling

A leading consumer advocacy organization has filed a petition with USDA requesting that the Food Safety and Inspection Service issue a rule prohibiting the use of the word "natural" in the labeling of meat and poultry products.

Submitted by Consumer Report's Food Safety and Sustainability Center, the petition claims there is a drastic difference between what the current USDA's definition of "natural" for meat and poultry and what the

consumer thinks "natural" means.

Consumer Reports says the petition is supported by results of a consumer opinion survey, conducted by Consumer Reports in June, that found that 60 to 68 percent of U.S. consumers interpret the "natural" claim on a label to mean there were no growth hormones, no antibiotics or other drugs, or that the feed for the animals did not contain GMO's or artificial additives.

The petition has been referred to the USDA's Office of Policy and Program Development for review. The public can view petition number 14-04 in the FSIS docket room at: <http://www.fsis.usda.gov/wps/portal/fsis/topics/regulations/petitions>. This web site contains a listing of petitions for rule-making and policy change submitted to FSIS that have generated public interest. Files are provided in PDF format.

Classified ads

We are always looking for industry related items to advertise in the Meat Messenger. We post sale and want ads **FREE**. Contact Julie Nilges (701-204-3248) at jnilges@nd.gov or Nathan Kroh (701-328-4767) at nkroh@nd.gov with product description and contact information.

Sipromac one truck smokehouse: Smokehouse has a Juno microprocessor and liquid smoke attachment. Included are two trucks and many sticks and screens. \$20,000; **True Brand cooler:** Cooler has two sliding doors and was manufactured in 2001. \$1,000; **New one-quart plastic containers with lids:** \$20 per lot of 50. Please contact Calvin or Alex for more information at 701-743-4451. Located in Parshall.

Walk-in freezer and components (4 items): (1) Three-phase Copeland compressor Hp p62 Freon, new in 2005. (Model 4RA3-100A-TSK-800, serial 05A66497R). (2) Single-phase Bohn cooling unit (Model 2402B serial DCD4540). (3) Larkin single-phase outside evaporator. (4) Walk-in freezer with shelves/baskets, sharp freeze shelves and cooling unit, has four-glass doors, free standing unit, walls snap together. Please contact Denise for more information at 701-438-2334. Located in Esmond.

Slaughter/processing business: Located in Esmond, ND. Fully operational meat processing facility, all equipment and supplies included. Currently custom-exempt, with option for retail and/or state inspected status, many equipment/facility upgrades last four years. Very strong customer base. Please contact Denise for more information at: 701-438-2334 or 701-351-1231. *Housing is available and the local area market is favorable for those interested.

Glass Door Freezer: Commercial freezer with 10 glass display doors. Made by Zero Zone, Waukesha WI. Unit comes in two pieces and includes the compressor. Any reasonable offer will not be refused. Call Larry at Brenno Meats, Sheyenne, ND. 701-996-2733 or cell 701-653-5071.

Find us on Facebook

Our Facebook page benefits both consumers and processors with facts about inspection, rules for producers who want to direct market their products, and tips for safely preparing meat and poultry products.

Please check out our page or feel free to ask a question by signing into Facebook and searching for North Dakota Meat and Poultry Inspection Program.



The new Meat and Poultry Inspection Program Facebook Page

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