

# 2008/09 LEAD FRAGMENTS IN GROUND VENISON PROCESSORS STUDY

In August 2008, the North Dakota departments of Health, Agriculture, and Game and Fish developed guidance for hunters and processors regarding the cleaning and dressing of wild game to reduce the chances of lead bullet fragments in meat. In addition, the Department of Agriculture, Meat & Poultry Inspection Division, sent all North Dakota meat processors specific guidance developed for commercial processors. This information was provided to the public and the meat processors before the 2008 fall deer hunting processing season started. ([www.ndhealth.gov/lead/venison/LeadVenisonGuidelinesForProcessors.pdf](http://www.ndhealth.gov/lead/venison/LeadVenisonGuidelinesForProcessors.pdf))

That same fall, the departments of Health and Agriculture partnered in developing a process to determine if the new processing guidance was having any impact on reducing the amount of lead found in ground venison product.

In October 2008, custom processing plants were contacted by the North Dakota Department of Health, Department of Agriculture and the North Dakota Community Action Partnership's Sportsmen Against Hunger program to see if they would be willing to participate in a study of ground venison meat and lead. From November 2008 through February 2009, Department of Agriculture Meat and Poultry field inspectors collected ground venison samples from the 2008 rifle deer hunting season at meat processing plants throughout the state. A minimum of four 50 milliliter vials (about ¼ cup) were collected at each custom processing plant. The samples of the ground venison were taken at either the grinder or collection tub or from the finished processed packages. Four hundred and four individual ground venison samples were collected from a total of 54 processing plants.

## Processing Plant Information

Total number of all types of meat processing plants in North Dakota	123
Total number of meat processing plants that process venison	91
Total number of meat processing plants that do not process venison	32
Total number of meat processing plants sampled for the 2008/09 ground venison study	54
Percentage of meat processing plants sampled	59%

All ground venison samples (total 404) were X-rayed at the Lewis and Clark Veterinary Clinic in Bismarck, N.D., using a Sedecal Digital X-ray machine. Out of the 404 samples, X-rays showed foreign material in 49 samples. Foreign material in this study was defined as any type of metal, bone, plastic or any other material that is not ground meat product.

## Ground Venison X-ray Screening Data

Sample Type	Total Number Sampled	Number Not Detected	Number of Samples Suspicious by X-ray	Percentage Suspicious by X-ray (%)
Ground Venison	404	355	49	12%

The 49 samples, along with two additional blank samples, were sent to Iowa Hygienic Laboratory for qualitative and quantitative analysis for lead. The amount of lead in each sample was qualified by the Iowa Laboratory by digesting the venison tissue around the lead and measuring the remaining lead. The presence of lead in a specific sample was determined by Inductively Couple Plasma (ICP)-Mass Spectrometry.

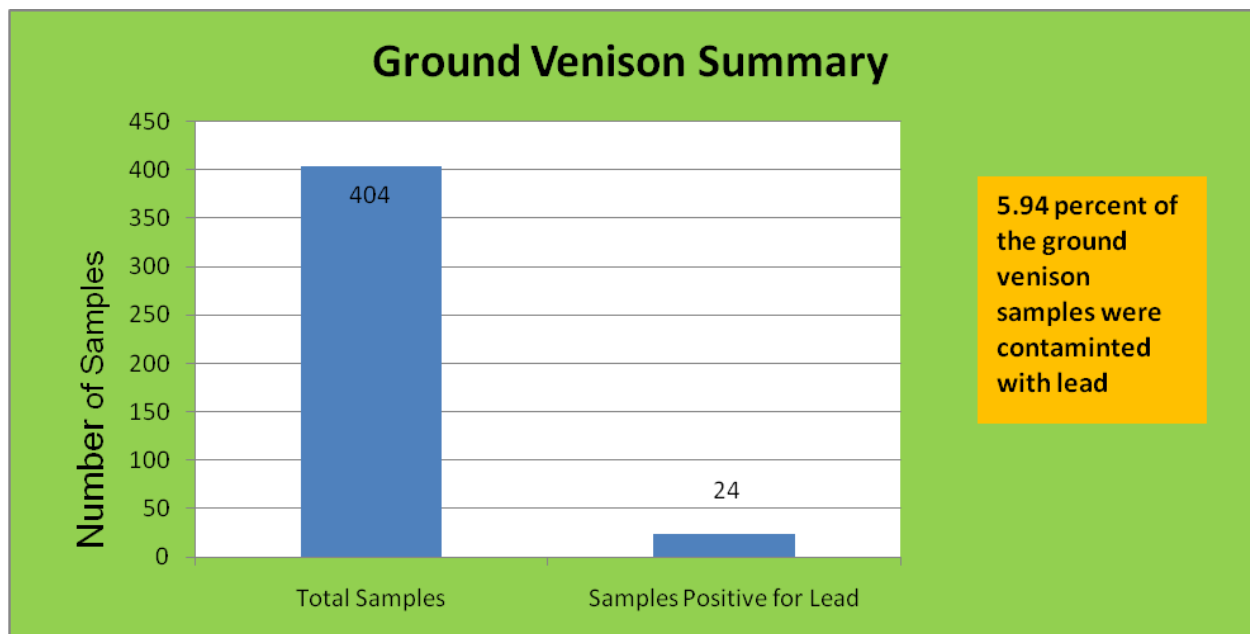
Of the 51 samples sent to the lab for analysis, 24 showed measurable amounts of lead. Testing determined that the foreign material in the other 27 samples was either a bone fragment, plastic or other type of metal, such as copper. The laboratory analyzed only for lead because of cost.

## Ground Venison Processor Lab Data Analysis

Number of processors represented by the foreign material X-ray samples	31
Number of processors that had lead-contaminated product by lab analysis	16
Total number of meat processing plants sampled for the 2008/09 study	54

## Ground Venison Summary

Total number of samples collected for the study	404
Total number of samples with lead-positive product verified by lab analysis	24
Percentage of samples contaminated with lead	5.94%



## Summary:

In 2008, the recommendation to remove all donated ground venison destined for distribution to food pantries was based on a small but valid investigation that identified lead particles in more than 50 percent of packages. However, the 2008 study cannot be directly compared to the results of the current study because of different sampling methods and sampling size of the product collected.

The 2008/09 ground venison processors study shows that fewer than 12 percent of the collected venison samples tested positive for foreign material by X-ray analysis, and only 5.94 percent of the collected venison tested positive for lead by lab analysis.

This study cannot determine whether the amount of lead could be further reduced by the processors by better adherence to the existing guidelines. Some lead particles will scatter far from the bullet track and may not be removed by extensive trimming by the processor. However, it makes sense that taking basic precautions may reduce the occurrence of lead fragments in ground venison. The Department of Agriculture and Department of Health still recommend that processors remain diligent about their practices and employ practices that will help reduce lead particles.

## The Big Question:

### **Should I continue to eat venison and other wild game shot with lead bullets?**

Most pieces of lead bullets should be removed during the dressing process, but even if properly processed, there is still a chance some pieces will remain in the meat. Because of the seriousness of lead poisoning, the North Dakota Department of Health still advises that pregnant women and children younger than 6 should not eat any venison harvested with lead bullets and that older children and other adults should take steps to minimize their potential exposure to lead and use their judgment about consuming game that was shot with lead-based ammunition.

For more information about this study, contact Sandi Washek or Dr. Stephen Pickard, North Dakota Department of Health, at 701.328.2372. For information about meat processing, contact Dr. Andrea Grondahl, North Dakota Department of Agriculture, at 701.328.4762. For additional information about lead bullet fragments in venison, visit [www.ndhealth.gov/lead/venison](http://www.ndhealth.gov/lead/venison).

*September 2009*

