



FEASIBILITY STUDY
on
PROCESSING NUISANCE
CANADA GEESE
for
HUMAN CONSUMPTION

Minnesota Department of Natural Resources, Section of Wildlife

Feasibility Study on Processing Canada Geese for Human Consumption

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IN 1995 THE MINNESOTA DEPARTMENT OF NATURAL Resources conducted a study to determine the feasibility of processing nuisance Canada geese for human consumption. Processing has been viewed as a possible management option when relocating nuisance geese is not feasible.

BACKGROUND

The Canada goose population within the seven-county Twin Cities metropolitan (metro) region has grown from less than 500 birds in 1968 to more than 24,000 in 1994 (Fig. 1). This growth has caused local goose populations to grow to socially unacceptable levels in many areas. Problems include excessive fecal deposits on land and in water, overgrazing of lawns, aggressive behavior by geese towards people and pets, and aircraft hazards at airports.

Responding to requests from metro municipalities, the Minnesota Department of Natural Resources (DNR) and the University of Minnesota (UM) have conducted a goose removal and relocation program since 1982. This program involves the capture of goslings and adult geese during early summer (the flightless period for geese) and relocating the birds elsewhere in Minnesota and other states.

The UM traps and removes the geese for delivery to a DNR holding facility. The DNR, which is responsible for relocating the geese, has been able to release most of the captured goslings elsewhere within Minnesota. Because goslings return to and nest near where they first learned to fly, they rarely return to the metro region. However, the adult geese have to be released in other states so that they don't simply fly back to the metro region, which they would if released elsewhere in Minnesota. Adults relocated in other states are held and wing clipped to prevent flight until the next summer's molt, though some (10% to 20%) still return to the metro region anyway.

Twin Cities metro region goose population growth, 1968-94 (A: projected without goose control, B: actual, with goose control)

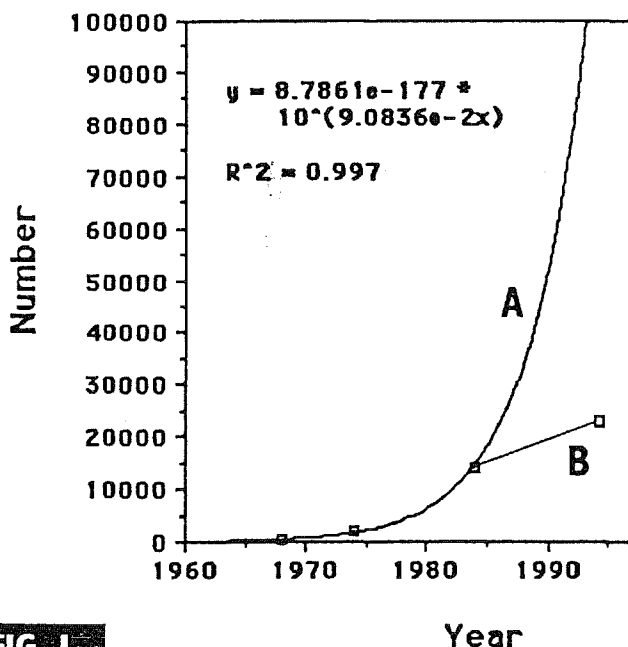


FIG. 1

Number of Canada geese removed from the Twin Cities metro region, 1982-95

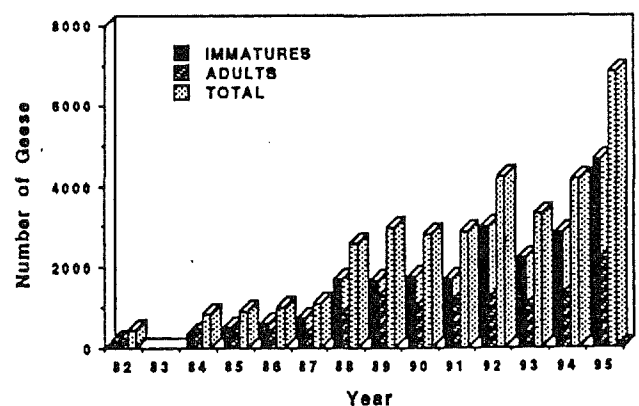


FIG. 2

Local units of government or private landowners contract with the UM to pay for removal costs. Payments vary from \$700 to \$1000 per site. The local unit of government must conduct a public meeting and approve the plan for removing the geese. Removal efforts have grown from 456 geese captured from one site in 1982 to 6,858 geese captured from 95 sites in 1995 (Fig. 2, previous page).

The program is conducted only in urban areas where traditional harvest management (hunting) is not an option for population control. The DNR has instituted special September and December hunting seasons in areas of the metro region where hunting is permitted. The special hunts have successfully reduced the goose population growth in these areas. Without control, the metro region goose population was projected to reach nearly 100,000 birds by 1994 (based on growth from 1968 to 1984). Surveys in 1994 showed that the control program combined with special hunting seasons helped keep the goose population at 24,000 (Fig. 1, previous page).

Non-hunting alternatives to relocation such as egg oiling or shaking, chemical lawn repellents, and goose sterilization continue to be studied as alternative techniques for nuisance goose management in the metro region. Fig. 3 lists the costs of goose control methods under study. The wide diversity and large number of wetlands serving as Canada goose nesting sites make alternatives dealing with nesting logistically difficult and

costly. Repellents have also proved costly and ineffective for long-term control.

The capture and relocation program remains the most cost-effective method for controlling local goose populations in the metro region where hunting is not a management option. In addition, the relocation of these geese has enhanced Canada goose populations in areas within Minnesota and in other states. However, the new and enhanced populations have now grown to where most of these areas no longer need or want additional birds. As a result, the DNR expects to run out of relocation sites for adults in 1996 and for goslings within the next few years.

PROBLEM

If the Twin Cities metro Canada goose removal program is to be continued, other alternatives to relocation will be needed for adults by 1996 and for goslings in a few years after that.

STUDY PURPOSE

Determine the feasibility of processing nuisance Canada geese for human consumption.

STUDY OBJECTIVES

1. Determine the operational feasibility, including cost, of processing nuisance Canada geese for human consumption through local food shelves.
2. Determine the public acceptability of processing a public wildlife resource for human consumption.
3. Determine the acceptability and interest in consuming goose meat products by food shelf clientele.
4. Determine the operational needs and funding necessary to support a processing program that would meet the needs of the current removal program.

METHODS

The study involved the processing (butchering) of 200 adult Canada geese from the Twin Cities metropolitan area for donation to local food shelves. The 200 adult Canada geese were selected from the geese captured as part of the 1995 UM/DNR removal program. The DNR selected 100 m

Costs of Canada goose population control alternatives

PROCEDURE	COST (\$) PER BIRD
Sport hunting	0
Relocation	10
Food shelves	20
Destroy eggs	40+
Sterilization	100+
Habitat modification	Extremely high

FIG. 3

and, to ensure the removal of geese that were attempting to nest, 100 brood-patch females.

The DNR used 22 of the geese to test the processing equipment and procedures. Then 75 geese were processed in the summer and 103 in early fall into various goose meat products. The goose meat was donated to two local food shelves and a survey of food shelf clientele was conducted to determine interest and acceptability. Weight gain and feed consumption by these geese were monitored during confinement before processing.

An additional 125 adult geese were processed in January 1996. These geese had originally been designated for relocation to Kansas, but that state later declined to take them and alternative sites could not be found. The DNR then decided to process the birds and donate them to food shelves. Although these geese were not part of the initial study, they did provide additional processing information that is included in this report.

The DNR developed and carried out a communications plan to gain informed consent by the public for the study. Media and public contacts were monitored and reviewed.

FINDINGS

The results of this study are listed in the following four areas: policy and environmental concerns, communications, holding and processing of geese, and food shelf response. These findings cover the first three objectives and provide the basis for completing the fourth objective.

A. POLICY ISSUES AND ENVIRONMENTAL CONCERNS:

The proposal to study this technique as a possible way to limit goose populations raised several policy and environmental concerns. Among the questions that need to be answered: 1. Could a protected species be processed for human consumption outside of the normal harvest (hunting) licensing procedure? 2. Which agencies have regulatory control or review over processing a wildlife resource for public donation? 3. What was the probability of the goose meat being contaminated with pesticides and heavy metals due to the birds' urban diet.

The DNR contacted the U.S. Fish and Wildlife

Service (USFWS) and received a special-purpose permit to take up to 200 Canada geese for the study (permit # PRT-799683). This permit was later amended to 325 geese to handle the additional 125 geese the DNR had been unable to send to other states.

The DNR also contacted the Minnesota departments of Agriculture and Health to review the study. These agencies provided comments and found the proposal acceptable within the context of a memorandum of understanding between the departments entitled "Use of Protected Species for Human Consumption" (Appendix A).

Potential contaminant concerns were reviewed and reported on by Dr. James Cooper of the UM in a report entitled "The Potential Health Hazards of Consuming Metropolitan Twin Cities Canada Geese" (Appendix B). This report found the potential health hazards to be low. The Minnesota Department of Health, Environmental Health Services Division, reviewed potential contaminant concerns and concurred that the health risk was low.

B. COMMUNICATIONS:

The Twin Cities Metro Canada Goose Relocation Program has been a highly visible program that receives widespread media coverage and public attention. The program was also the target of two lawsuits in 1993 by People for the Ethical Treatment of Animals (PETA). Although the lawsuits were dismissed in U.S. District Court and eventually settled in Minnesota District Court, they underscored the need for effective public communications if the study was to be successful. A copy of the communications plan is provided in Appendix C.

The goal of the communications plan was "to gain public acceptance of the food shelf program as a viable option for goose population management in the Twin Cities metro area." Through the communications plan, the DNR outlined the problem, explained the difficulty with various alternatives, and presented the study as a reasonable way to explore possible alternatives to relocation.

The plan identified specific audiences in need of information about the proposed study. Key to the

success of the communications plan was to get information to the various targeted audiences early in the project planning stage and keep them informed of the project's intent and progress.

When the study was announced in March 1995 it received widespread local coverage and even some national media attention. Television, radio, and newspapers carried the announcement as a lead story. The UM held a "media day" during the roundup so that local media could get film footage of a goose roundup and talk to wildlife managers about the proposed study. Additional media coverage came when the goose meat was delivered to local food shelves.

As a result of the positive media coverage and proactive, targeted communications to various audiences before and during the study, there was virtually no public opposition to the study. The DNR received approximately 15 phone calls and 5 letters. About one-third of the callers were against the program, another one-third supported it, and the rest were interested in more information on the program and where they might get a processed goose.

The widespread and positive media coverage, small public response, and lack of political or legal actions (lawsuits) indicate that the communications plan goal was met.

C. HOLDING AND PROCESSING OF GEES:

The 200 geese selected for the study, along with the additional 125 geese, were placed in a former swan-rearing pen. The pen was approximately two acres in size, including one acre of open water. This was the only facility available and may not have been the best holding facility due to the small amount of grazing area. Because all the available forage was eaten within the first week, commercial feed was fed from summer through fall.

The feed consumption was monitored from mid-August to mid-September to determine rates and cost. The geese were fed approximately equal portions of shelled corn and a commercial goose ration. The DNR estimated feed consumption at 18 lbs. of feed per month per goose. This represents a feed cost of \$1.59 per goose per month.

The feed estimates were calculated by dividing the feed consumption by the number of geese present in the holding pen. The feeders were checked three times a week, requiring about 1 hour per week of labor.

The feed cost to hold the geese for three months (August-October) was approximately \$5 per goose. Adding labor costs brings the estimated costs to about \$6 per goose.

Commercial domestic geese growers utilize grazing pastures and wetlands or water troughs for holding geese. The geese are held on grass until early fall, when they are fed feed grains. A future operation holding 1000+ geese on suitable pasture could use less-expensive feed and could pasture the geese until fall, reducing the cost per bird.

Weights of the geese were taken on July 10 and September 25. They showed a small average increase for males of approximately 0.15 lb. with an average weight of 10.75 lbs in July and 10.9 lbs in September. The females gained an average of 0.85 lb. The females averaged 8.9 lbs. in July and 9.75 lbs in September. DNR wildlife managers expected a larger weight gain in both males and females. Canada geese are at their lowest weight in summer due to nesting and brood-rearing. Geese normally gain back their body weight in the fall and winter. The weight gain should be studied in more detail to determine if holding geese in larger pens or on pasture, and for a longer time (until October or November), would increase weight gain and reduce feed costs.

The 125 extra geese that were processed on January 10 were not weighed before processing, but the processed whole goose yielded an average of 9 lbs. This would indicate that the geese gained significant additional weight from early fall.

Processors

Food shelves requested a U.S. Department of Agriculture (USDA) inspection and stamp of approval on all donated meat products. This required that processing be conducted at a USDA-inspected processing plant. In addition, the processor had to develop an approved label and for a processing plant (Fig. 4, next page).


USDA-approved packaging label developed by the DNR

Canada Goose

☐ Boneless breast
☐ Whole without neck and giblets

☐ Breast and legs
☐ Other _____

Processed by Kadejan Inc.
 Glenwood, MN 56334
 For Minnesota Department of Natural Resources
 Donation - not for sale
 USFWS Form # FKT-7598B3



**Keep Refrigerated
or Frozen**

Net Wt. _____ lbs.

Quick Identification Instructions

THIS PRODUCT HAS PACKING (PINS) REMOVED AND SHOULD BE KEPT SEPARATE FROM OTHER PRODUCTS. IF THE PRODUCT IS REPACKED OR REPACKED, IT MUST BE REPACKED WITHIN 24 HOURS OF THE DATE OF REPACKING.

DO NOT REPACK OR REPACK WITHIN 24 HOURS OF THE DATE OF REPACKING. IF THE PRODUCT IS REPACKED OR REPACKED, IT MUST BE REPACKED WITHIN 24 HOURS OF THE DATE OF REPACKING.

FIG. 4

It was difficult to find USDA-approved poultry processing plants capable of and willing to process geese. Processing large numbers of geese requires more equipment and labor than is used for most poultry processing. Kadejan, Inc. of Glenwood, Minnesota and Schiltz, Foods Inc. of Sisseton, South Dakota were willing to process the geese. Kadejan Inc. is a poultry processor that primarily handles chickens. Schiltz Foods., a major domestic goose processor, processes more than 100,000 geese each year and is a major supplier of domestic geese to retail markets. Schiltz Foods processes only in the fall (September to early December), which is the primary season for retail goose sales.

An additional 125 geese were processed in January, 1996 at Wild Acres, Inc. of Pequot Lakes, Minnesota, a state-certified processor which does not have USDA inspection. The DNR had by then received approval to conduct the processing at a state-certified plant from the food shelf operators. Recent contacts with food shelf operators indicate that the need for USDA inspection may not be a requirement in the future, though state-certified plants would still be needed. This change could increase the number of potential processors.

Processing:

The study called for processing 50% of the geese in the summer and the rest in the fall. The DNR planned to use only the breast meat on summer processes because geese are at their lowest body weight and fat content then. The whole bird process would be used for the geese held to the fall. On July 13, the DNR used 22 geese (2 at Kadejan

and 20 at Schiltz Foods) to test equipment and procedures. These geese were not donated to food shelves. Based on this test run, the DNR decided to offer two other goose meat products in addition to the boneless breast. These included smoked boneless breast and ground goose meat. An additional 75 geese were processed into these meat products on July 27 for donation to food shelves. Approximately 36 of the geese were packaged into boneless breast, another 36 geese were processed into ground goose meat, and 3 geese were packaged into smoked boneless breast. The geese breasts and ground goose were delivered to food shelves on August 11.

A total of 103 geese were processed at Schiltz Foods on September 28. These geese were processed into "whole breast and legs" packages instead of as whole geese. This change was made to avoid the extra processing cost to remove the many pin feathers remaining on the backs of the geese after the plucking process. Packing the geese as "whole breast and legs" eliminated the problem, since backs were not used. This type of packing recovered 80% of the meat and provided a marketable package that was more cost-effective for processing and distribution than a whole goose would have been.

Processors indicated that Canada geese should only be processed "in the whole" after mid-October to ensure that pin feathers are not a problem. They said it takes cold weather (hard frost) for the pin feathers to emerge from under the skin.

On January 11, 1996 the DNR processed 125 geese in the whole at Wild Acres. These processed geese showed high levels of body fat and picked very clean.

Yields:

The geese processed in July yielded an average of 1.5 pounds of breast meat (no skin or bones). The geese processed in September yielded an average of 3.5 pounds (whole breast and legs pack, skin and bones included in the weight). The geese processed in January yielded an average of 9 pounds in the whole (including giblets).

Kadejan Inc. processed, bagged, and delivered the geese products to the food shelves at a cost of

approximately \$6 per goose for a 1.5-lb. product, or \$4 per lb. of processed meat.

Schiltz Foods processed, bagged, and delivered the geese to St. Paul at a cost of \$8 per goose for a 3.5-lb. product, or \$2.30 per lb. of processed meat.

Wild Acres processed and bagged the geese at a cost of \$6.50 per goose for a 9-lb. product, or \$.75 per lb. of processed meat.

Table 1 compares the costs of the three types of processing. The table also lists the wholesale cost for similar domestic goose meat products.

TABLE 1: COST COMPARISON OF PROCESSING			
Product/ Processor	\$/Goose (1)	\$/LB. (2)	\$/LB. (3)
Breast-only/ Kajedan, Inc.	\$6.00	\$4.00	\$8.30
Whole Breast & Legs/ Schiltz Foods, Inc.	\$8.00	\$2.30	\$4.00
Whole Goose/ Wild Acres, Inc.	\$6.50	\$0.75	\$2.00
1. Cost of processing per goose. 2. Cost of processing per lb. of processed goose product. 3. Wholesale price for a similar domestic goose product (Schiltz Foods Inc., October 1995).			

The cost of goose meat is higher than other poultry products because of the high processing costs and higher costs of raising the birds. Although the nuisance goose processing costs are high compared to other poultry products, they were one-half to one-third the cost of similar domestic goose products.

However, it is important to note that both Kajedan and Schiltz indicated that their processing price quotes were at or below their actual costs to process these geese. They found that "wild" Canada geese were more difficult to handle and required some changes in processing equipment due to the bird's smaller size.

D. FOOD SHELF RESPONSE:

Second Harvest Food Bank of St. Paul and Emergency FoodShelf Network of Minneapolis were selected to participate in the study.

Second Harvest Food Bank of St. Paul distributes to more than 300 nonprofit agencies across Minnesota. Emergency FoodShelf Network serves the Minneapolis area. These food shelves were able to market and distribute the goose products to local and statewide food shelves and to hot meal programs.

Food shelf operators indicated that they served people in need almost 1.5 million times in 1993 and that 1 in 16 Minnesotans used a food shelf that year. Based on these figures and the high need for meat protein at food shelves, the operators said they could use thousands of geese. Due to the media stories about the study, food shelf operators received numerous calls from people in need asking for the goose products.

A two-page questionnaire (Appendix D) was distributed with the goose meat products to food shelf clientele. A self-addressed, stamped envelope was provided with the questionnaire. Table 2 is a summary of the responses from the summer and fall processing questionnaire. The information from the winter questionnaire was unavailable when this report was written.

TABLE 2: FOOD SHELF CLIENT SURVEY

Question	Survey Dates	
	AUGUST	OCTOBER
1. Have you ever had goose meat in the last 10 years?		
YES	17%	9%
NO	83%	91%
2. Rank how well you liked this goose meat product from 1 to 10 (10 highest)?		
Rank	8.3	8.4
3. Would you use this goose meat product again if offered?		
YES	100%	91%
August n = 6		
October n = 11		

The questionnaire results and clientele comments indicate that the food shelf clients are interested in and able to use these products. Based on this information, the high number of food shelf clientele, and the interest by food shelf operators, the demand for the goose meat products will meet or exceed the supply.

STUDY SUMMARY

The findings of this study indicate that processing Canada geese from the Twin Cities metro region for human food appears to be an economical, operationally feasible, and socially acceptable method for controlling nuisance populations.

The cost of processing (\$6-\$8) and holding (\$2-\$7) geese will add \$8 to \$15 per goose to the current capture and removal costs of \$10, bringing the total cost to \$18-\$25 per goose.

The public response to this alternative has been supportive (or at least not negative) and food shelf clientele and operators have shown high interest in the processed goose meat products. Public health and interagency concerns have been addressed.

FUTURE OPERATIONAL PLANNING

Based on the findings of this study, the following estimates and recommendations are made to further develop an operational plan to process 2000 adults in 1996. Goslings will likely be included in the future.

1. The cost of processing and holding 2000 adult geese from the 1996 goose roundup will be approximately \$25,000. These costs should be viewed as disposal costs for the adult geese and charged back to those receiving the benefits (municipalities, airports, etc. requesting goose removal). The most efficient way to obtain this funding is to charge it to the contractor that requests goose removal as part of the removal contract.

2. To determine the most efficient and cost-effective method to produce goose meat products, there needs to be additional study on summer and fall processing. Although adults could be slaughtered in the summer, processing in the fall

would likely provide a better product, although this will require additional testing.

3. Contracts for processing need to be completed before beginning the goose roundup. Contracting with processors willing to do geese has proven difficult and will require additional work. The majority of poultry processors are unable to handle large numbers of waterfowl. The limited market for waterfowl and the extra work in processing waterfowl limit the number of vendors.

4. Contractors or state facilities will be needed to hold geese from summer to late fall for the following reasons: 1. Some adults will need to be pastured or fed for fall processing; 2. if goslings are to be processed, they will also need to be fed until fall; and 3. locating a processor to handle 2000 geese will be easier in the fall, because domestic goose processors only process then.

5. Holding 2000 geese should be closely monitored to provide information on goose husbandry for future operations.

6. Use a metal detector to determine the presence of shot in geese. Steel shot was found in a few geese during processing. The metal detector could be used to reduce the potential dental hazard to consumers from shot in a goose meat product. ■

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January 1996

Memorandum of Understanding

Use of Protected Species For Human Consumption

The Minnesota Departments of Agriculture, Health, and Natural Resources set forth this agreement to govern the conditions under which protected species of wild animals may be utilized for human consumption. This agreement is between the above mentioned Departments and has no standing with regard to the use of protected wild animals taken by sportpersons for their own use.

Justification:

The participants in this agreement acknowledge the need to make maximum use of protected wild animals for human consumption not inconsistent with safeguarding public health. The protection of public safety shall be the overriding principle governing the use of natural resource for human consumption. Within that framework, every effort has been made to maximize the use of natural resource products confiscated by DNR as a result of law enforcement activities or accidental taking.

General Principles:

1. Natural Resources products, fish and game, when properly cleaned, stored, and prepared are a healthy natural source of food for human consumption. Any objections to the use of natural resource products stem from improper or unknown cleaning, storage, or processing techniques, not the products themselves.

2. Natural resource products processed at establishments licensed for food preparation by the Department of Agriculture or Health are approved for human consumption.

3. Natural resource products cleaned and stored by Conservation Officers are approved for human consumption provided processing and storage procedures comply with the standards outlined in Appendix "A."

Guidelines:

The following individual situations have been identified as typical of how natural resource products are confiscated:

1. Roadchecks - Generally fish/game seized at roadchecks should not be utilized for human consumption. The cleaning and storage procedures cannot be established with any degree of certainty making the products unsuitable.

2. Individual Confiscations - Confiscations of fish/game from individual sportspersons in the field could be used for human consumption if the cleaning and storage is not done by the alleged violator. Cleaning and storage by a Conservation Officer or a licensed establishment would allow the fish/game to be utilized for human consumption.

3. Netting confiscations - Fish removed from nets by Conservation Officers could be acceptable for human consumption provided they are cleaned and stored by the officer or a licensed establishment. Fish cleaned and stored by a fish cleaning service must be evaluated on a

case by case basis to determine suitability for human consumption.

4. Undercover Purchases/Commercial Seizures - Generally fish/game resulting from this type of confiscation would not be acceptable for human consumption. The cleaning and storage procedures cannot be established with any degree of certainty making the products unsuitable. Individual situations where conservation officers, acting in an undercover capacity, have first hand knowledge of cleaning and storage procedures can be evaluated on a case by case basis.

5. Fishing Contest Donations - Fish taken during a fishing contest and donated by the taker could be used for human consumption if cleaned and stored by a conservation officer or licensed establishment.

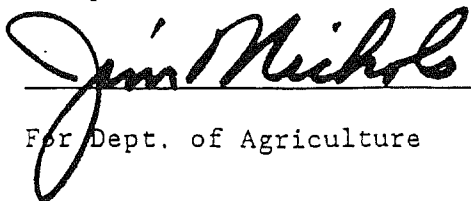
6. Road Killed Big Game Animals - Big game animals (deer, moose, bear, elk) killed as a result of collisions with automobiles may be acceptable for human consumption provided the applicable cleaning and storage provisions of Appendix "A" are met. Big game animals confiscated as a result of violations may be acceptable for human consumption if evaluated by a conservation officer and found suitable. In the case of a violation and subsequent confiscation from a violator, the conservation officer will base his/her evaluation on the applicable provisions of Appendix "A."

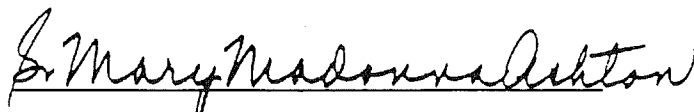
7. Other Sources/Situations - Fish/Game originating from other sources or in situations not covered by the Guidelines or General Principles must be evaluated on an individual basis. The Minnesota Departments of Agriculture and/or Health will assist with any special evaluation.


Review

This agreement is subject to review and/or modification at the request of any of the signatory agencies at any time.

Signatories


For Dept. of Agriculture


For Dept. of Health


For Dept. of Natural Resources

Effective March 1, 1990

MEMORANDUM OF UNDERSTANDING
MN DEPTS. AGRICULTURE, HEALTH, NATURAL RESOURCES

APPENDIX A

The following items are guidelines that Conservation Officers should consider in evaluating fish and wild game that is seized to determine whether or not it is suitable for human consumption.

1. All fish and wild game which are to be considered for human consumption should be in a wholesome condition and have been stored at temperatures of 40 F or less. If the fish and wild game have been frozen, they should be thawed at refrigeration temperatures, under cold running water or as a part of the cooking process (such as a microwave oven).
2. Evisceration of fish and wild game is critical and must be accomplished as soon as possible after the death of the animal and at least within two hours. Evisceration of salvageable fish and wild game could be postponed for a reasonably longer period of time when the fish and wild game have been subjected to colder temperature (below 40 F).
3. The University of Minnesota Agricultural Extension Service recommends that northern pike and pan fish should not be frozen longer than 7-9 months; they also recommend that wild game birds and animals not be kept in a frozen state longer than 9 months.
4. The containers used for transporting fish and wild game after it has been processed should be constructed of materials that are smooth, nonabsorbent and easily cleanable. These containers should be washed, rinsed and sanitized with a chemical sanitizer (chlorine laundry bleach and water) after each use. The containers must be capable of maintaining the fish and wild game at 40 F or lower during the transportation time.
5. Whenever possible, wild game and fish that are seized in an unprocessed state should be processed at a facility which is licensed by the Department of Agriculture. If that is not practical or possible, then the processing should take place in a facility such as a domestic or commercial kitchen, as opposed to garages, wooden tables, etc.

THE POTENTIAL HEALTH HAZARDS OF CONSUMING METROPOLITAN TWIN CITIES CANADA GEESE

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Date: 2/28/95

Background--Extirpated from much of the region in the past century (Dill and Lee 1970), the Canada goose (Branta canadensis) is now a common breeding bird in many North American urban centers (Kemper 1995). Once reintroduced, low egg and bird predation, limited hunting pressure, and an abundance of habitat in urban centers have permitted rapid population expansion (Laycock 1982, Nelson and Oetting 1982, Cooper 1987, Kemper 1995). For example, geese in the Twin Cities of Minnesota have increased from less than 500 birds in 1968 (Hawkins 1970) to more than 24,000 in 1994 (Cooper In Press). Complaints about goose droppings, damage to lawns and gardens, and concerns about road and aircraft safety (Cooper 1991) have grown concurrently with the population (Cooper In Press).

Problems associated with expanding goose populations have lead to intensive goose management programs. Management approaches include a variety of procedures ranging from harassment and physical barriers to egg destruction, increased hunting mortality, and the relocation the birds. Foremost among the techniques employed has been relocation where flightless adult and young geese are captured in summer and moving to distant locations (Cooper 1987). While relocation is the most biological and cost effective management technique unhunted areas, the procedure has become self-limiting as release sites have become stocked with geese. Currently there are few release areas for adult geese thus an alternative to relocation is needed. One option frequently suggested is the use of the geese for human food. With thousands of geese produced annually, the potential benefits of such a program could be significant.

Problem--There are two primary concerns with using geese captured in urban areas for human food: Will this approach be socially acceptable and can urban Canada geese be safely consumed by people? This report addresses the latter.

The primary sources of potential contaminants are turf grass maintenance chemicals (Moul and Elliott 1992) and industrial chemicals (Amundson 1988). The among the chemicals used on golf courses and other turf grass areas, only the insecticide diazinon has been found to be highly toxic to wildlife (Tables 1-3). Diazinon has killed ducks (Kendall et al. 1992) and geese (Zinkl et. al 1978, Stone and Knoch 1982), but is only moderately toxic to mammals (Gaines 1969). The chemical is unstable in the environment (Zinkl et. al. 1978) and is not believed to be a human carcinogen (National Cancer Institute 1979). In contrast, Amundson (1988) detected significant PBC, dieldrin, and heptachlor residues in Canada geese using industrial sites. Based on a consumption rate of three geese per year, Amundson concluded that at the upper extremes of residue concentration and consumption, the exposure to dieldrin was "higher than the acceptable risk" for children and men.

Recommendations--Because the potential risks associated their consumption, I recommend that geese from industrial sites not be considered for human food until research similar to Amundson's be done for Twin Cities' sites. Since less than 0.1% of the geese captured and relocated in the past 10 years were found in industrial areas, such a policy would not impact the management program. There is no evidence in the literature to indicate that geese captured in on golf courses, parks, and other turf grass areas are unfit human consumption. Thus, the consumption of urban Canada geese from non-industrial sites, if socially acceptable, would be a safe and biologically effective technique for limiting goose numbers.

Literature Cited--

- Amundson, D. A. 1988. Organochlorine pesticides and PCBs in edible tissues of giant Canada geese from the Chicago area. M.S. Thesis, Univ. of Ill. Chicago. 98pp.
- Cooper, J. A. 1987. The effectiveness of translocation control of Minneapolis-St. Paul Canada goose populations. Pages 169-172 *In* Adams, L.W. and D. L. Leedy, eds. Integrating man and nature. Proc. Natl. Symp. on Urban Wildl. Natl. Inst. for Urban Wildl., Columbia, MD.
- Cooper, J.A. 1991. Canada goose management at the Minneapolis-St. Paul International Airport. Pages 175-183 *in* Adams, L.W. and D. L. Leedy, eds. Wildlife Conservation in Metropolitan Environments. Proc. Natl. Symp. on Urban Wildl. Natl. Inst. for Urban Wildl., Columbia, MD.

- Cooper, J.A. In Press. Nuisance Canada Goose Management in the Twin Cities of Minnesota. Proc. Natl. Symp. on Urban Wildl. Natl. Inst. for Urban Wildl., Columbia, MD.
- Dill, H.H. and F.B. Lee, eds. 1970. Home grown honkers. U. S. Dep. Inter., Fish and Wildl. Serv., Washington, D. C. 154pp.
- Hawkins, A.S. 1970. Honkers move to the city. Pages 120-130 in H.H. Dill and F.B. Lee, eds. Home grown honkers. U. S. Dep. Inter., Fish and Wildl. Serv., Washington, D. C.
- Kemper, S. 1995. What's good for the goose may not be good for you. Smithsonian 25:70-78
- Kendall, R.J., L.W. Brewer, R.R. Hitchcock, and J.R. Mayer. 1992. American wigeon mortality associated with turf application of diazinon AG500. J. Wildl. Dis. 28:263-267.
- Laycock, G. 1982. The urban goose. Audubon 84:44-47.
- Moul, I.E. and J.E. Elliott. 1992. A survey of pesticide use and bird activity on selected golf courses in British Columbia. Canadian Wildlife Service Tech. Rept. 163, 103pp.
- National Cancer Institute: Division of Cancer Cause and Prevention. 1979. Bioassay of diazinon for possible carcinogenicity. Dept. of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Cancer Institute, Division of Cancer Cause and Prevention, Carcinogenesis Testing Program, Bethesda, Md.
- Nelson, H.K. 1963. Restoration of breeding Canada goose flocks in the North Central States. Trans. North. Am. Wildl. and Nat. Resour. Conf. 28:133-150.
- Nelson, H. K. and R.B. Oetting 1982. An overview of management of Canada geese (Branta canadensis) and their adaptation to suburban conditions in the USA. Aquila 89:303-306.
- Stone, W. B. and H. Knoch. 1982. American brant killed on golf courses by diazinon. N.Y. Fish Game J. 29:95-96.
- Zinkl J.G., J. Rathert, and R.R. Hudson. 1978. Diazinon poisoning in wild Canada geese. J. Wildl. Manage. 42:406-408.

Table 1. Toxicities of golf course fungicides.

Active ingredient	Species	Toxicity	Source
Anilazine	rabbits fish	LD ₅₀ 460 mg/kg toxic	Worthing 1987 Adams 1987
Benomyl	Japanese Quail Mallard ducklings fish	LC ₅₀ >5,000 mg/kg LC ₅₀ (8d) >500 mg/kg diet toxic	Hill and Camardese 1986 Worthing 1987 Adams 1987
Chloroneb	Bobwhite Quail Mallard	LD ₅₀ >5000 mg/kg LD ₅₀ >5000 mg/kg	Worthing 1987 Worthing 1987
Chlorthalonil	Bobwhite Quail Mallard ducklings Rainbow Trout fish	LC ₅₀ (8d) 5,200 mg/kg diet LC ₅₀ (8d) >21,500 mg/kg diet LC ₅₀ (?) 0.25 mg/l water toxic	Worthing 1987 Worthing 1987 Worthing 1987 Adams 1987
Iprodione	Bobwhite Quail Mallard honeybees	LD ₅₀ 930 mg/kg LD ₅₀ 10,400 mg/kg practically non-toxic	Worthing and Hance 1991 Worthing 1987 Worthing 1987
Hancozeb	Japanese Quail carp tadpoles	LC ₅₀ >5,000 mg/kg diet LC ₅₀ (48h) 4.0 mg/l water LC ₅₀ (48h) 3.5 mg/l water	Hill and Camardese 1986 Worthing 1987 Worthing 1987
Maneb	Japanese Quail Mallard ducklings carp	LC ₅₀ >5,000 mg/kg diet LC ₅₀ (8d) >10,000 mg/kg diet LC ₅₀ (48h) 1.8 mg/l water	Hill and Camardese 1986 Worthing Worthing 1987
Metalaxyl	bees and birds rainbow trout carp	practically non-toxic LC ₅₀ (96) >100 mg/l water LC ₅₀ (96) >100 mg/l water	Worthing 1987 Worthing 1987 Worthing 1987
Quintozene	Mallard Bobwhite Quail	LC ₅₀ >5,000 mg/kg diet LC ₅₀ >5,000 mg/kg diet	EPA 1987 EPA 1987
Thiophanate-methyl	Japanese Quail fish	LD ₅₀ >5,000 mg/kg toxic	Worthing and Hance 1991 Adams 1987
Thiram	Japanese Quail trout carp	LC ₅₀ >5,000 mg/kg diet LC ₅₀ (48h) 0.13 mg/l water LC ₅₀ (48) 4.00 mg/l water	Hill and Camardese 1986 Worthing 1987 Worthing 1987
Triforine	Bobwhite Quail	LD ₅₀ >5000 mg/kg	Worthing 1987

Adapted from (Moul and Elliott 1992).

Table 2. Toxicities of golf course herbicides.

Active ingredient	Species	Toxicity	Source
Dicamba	Japanese Quail pheasant trout	LC ₅₀ >5,000 mg/kg LD ₅₀ 673-800 mg/kg LC ₅₀ (48h) 35 mg/l water	Hill and Camardese 1986 Adams 1987 Adams 1987
Diquat	Japanese Quail Mallard	LC ₅₀ 1.227 mg/kg LD ₅₀ 564 mg/kg	Hill and Camardese 1986 Adams 1987
Glyphosate	Japanese Quail quail trout adult fingerling	LC ₅₀ >5,000 mg/kg diet LD ₅₀ 3.650 mg/kg LC ₅₀ (96h) 38-97 mg/l water LC ₅₀ (96h) 1.3-42 mg/l water	Hill and Camardese 1986 Adams 1987 Adams 1987 Adams 1987
Mecoprop	Japanese Quail	LC ₅₀ >5,000 mg/kg diet	Hill and Camardese 1986
Paraquat	Japanese Quail Rainbow Trout	LC ₅₀ 948 mg/kg diet LC ₅₀ (96h) 32 mg/l water	Hill and Camardese 1986 Worthing 1987
2,4-D	Japanese Quail	LC ₅₀ >5,000 mg/kg diet	Hill and Camardese 1986

Adapted from (Moul and Elliott 1992).

Table 3. Toxicities of golf course insecticides.

Active ingredient	Species	Toxicity (ppm)	Source
Carbaryl	Japanese Quail	LC ₅₀ >10,000 mg/kg diet	Hill and Camardese 1986
	Mallard	LD ₅₀ 2,180 mg/kg oral	Adams 1987
	pheasant	LD ₅₀ 2,000 mg/kg oral	Adams 1987
	trout	LC ₅₀ (96) 4.38 mg/l water	Adams 1987
Diazinon	Japanese Quail	LC ₅₀ 167 mg/kg diet	Hill and Camardese 1986
	Mallard	LD ₅₀ 3.5 mg/kg oral	Adams 1987
	pheasant	LD ₅₀ 4.3 mg/kg oral	Adams 1987
	Rainbow Trout	LC ₅₀ (96) 2.6-3.2 mg/l water	Worthing 1987
	salmon	LC ₅₀ (96) 3 mg/l water	Adams 1987
	honeybees	toxic	Worthing 1987
Dimethoate	Mallard	LD ₅₀ 41.7 mg/kg oral	Adams 1987
	trout	LC ₅₀ (96) 9 mg/l water	Adams 1987
Malathion	Mallard	LD ₅₀ 1,485 mg/kg oral	Adams 1987
	salmon	LC ₅₀ (96) 0.043 mg/l water	Adams 1987

Adapted from (Moul and Elliott 1992).

Metro Goose Food Shelf Pilot Project COMMUNICATIONS PREPARATION

FINAL

2-15-95

SITUATION ANALYSIS

To slow the growth of the Twin Cities metro area Canada goose population—which in some areas has become a nuisance and safety hazard—the Minnesota Department of Natural Resources plans to capture, process, and donate to area food shelves 100 adult geese in addition to other ongoing control work.

Uncommon 20 years ago, Canada geese in the Twin Cities metro area have grown in number during the past two decades beyond their “social carrying capacity”—the point at which most people will tolerate additional numbers of wildlife. Many residents of the Twin Cities and outlying suburbs complain that geese limit their use of public recreational areas. The 10- to 15-pound birds foul parks, golf courses, softball fields, and city lake pathways, and intimidate children, swimmers, joggers, walkers, and cyclists. The growing goose population also poses a significant safety hazard at airports. Airport officials cite the birds as hazardous to navigation, landing, and takeoff.

Canada geese were reintroduced to the metro area by citizens and some municipalities in the 1960s. In subsequent years, the birds thrived in the excellent habitat created by the growing combination of small ponds near lawns, parks, and golf courses that began to replace pasture, cropland, and wetlands in the outer ring suburbs. As grazers, geese prefer short grass with nearby water unobstructed by tall plants.

The geese also benefited from the lack of predators which would have kept their numbers down. The burgeoning goose populations received additional protection as the municipalities closed hunting within their jurisdictional limits.

Since the early 1970s, metro cities and suburbs have asked the DNR to help control goose numbers. Since then, state wildlife managers have used several methods to slow the Canada goose population growth. These include chasing the birds off parks and golf courses with noise-makers and other repellents, recommending changes in landscapes to reduce goose habitat, expanding the hunting season in the metro area and encouraging municipalities to allow hunting, and trapping and relocating adult geese and goslings.

Of these, the most cost-effective control methods have been the hunting season—in which approximately 12,000 geese are shot by hunters in the seven-county metro area each

year—and the the trap-and-relocate program—worked cooperatively with the University of Minnesota—which moves up to 4,000 geese from the metro area to other states and other parts of Minnesota.

So far, these various activities have successfully reduced the rate of growth of the goose population in the metro area and reduced the nuisance problems of geese in specific areas. They have also ensured that the costs associated with goose control are borne by those receiving the control.

These activities are succeeding at keeping the metro goose population stable. However, the DNR will soon run out of places to relocate the geese trapped each summer. All available habitat in Minnesota is or will soon be at full capacity. Several other municipalities—such as Rochester, Grand Marais, Virginia, and Willmar—are now experiencing the same nuisance problems seen in the metro area. And few states are any longer requesting geese, having begun experiencing goose problems of their own.

The DNR shares responsibility for managing the metro goose population. Yet the agency is unable to expand hunting opportunities in the area and is faced with having no place to put the geese it captures. Therefore, it plans to explore the feasibility of processing some of the birds and donating them to area food shelves.

COMMUNICATIONS PLAN OBJECTIVE

Gain public acceptance of the food shelf program as a viable option for goose control in the metro area.

AUDIENCES

1. Goose hunters and conservation groups (GU, MWA, DU, MCF)
2. Park-users (Softball players, golfers, joggers, cyclists, Mpls. Parks and Rec Board)
3. Non-park-users (remaining citizens)
4. Animal rights organizations (especially PETA), animal rights sympathizers
5. Government internal (CMT, Enforcement, SMT, governor's office, Dept. Ag., Dept. Health, U of M, MS Flyway Council, other states, food shelves)
6. Outdoors media (O.N., Niskanen, Anderson/Schara, Cook, and maybe MPR or Joe Soucheray or Barbara Flanagan, Doug Growe, Doug Tice if needed)

CURRENT ATTITUDES AND PERCEPTIONS

1. Frustrated that can't get access to hunting areas in metro. Can't understand why too many geese when I can't even shoot one. Don't believe too many geese outstate because

none in my area. DNR not addressing needs of hunters. Can't understand why DNR can't put more geese on public areas.

2. Don't like geese, which they view as long-necked rats. Support DNR efforts and encourage them to do more. Might feel uneasy about the DNR killing the birds, however, if we don't convince them it is the only LOGICAL solution to THEIR problem.

3. Indifferent about geese or like them. Don't know of the goose problem. Would possibly (likely?) be critical of DNR killing geese.

4. Love geese. Would protest any DNR efforts to kill geese or other wildlife, for any reason. Want DNR to explore non-lethal options more fully, or want rest of the public to just put up with geese. Live and let live attitude, despite proven problems.

5. Don't fully understand the process used by the DNR so far to arrive at control suggestions. Don't fully recognize the potential for problems if this pilot project not communicated clearly to the public. Other states perceive threat to their hunting opportunities if MN goose numbers reduced.

6. Likely to be supportive of DNR efforts, unless they perceive this is a threat to hunters and hunting opportunities..

DESIRED ATTITUDES AND PERCEPTIONS

1. Believe the DNR has done all it can to improve goose hunting opportunities in the metro area. Accept the fact that rural Minn. is at capacity for additional Canada geese. DNR is taking a logical approach to managing the metro goose population. If they want more hunting, they need to take their case to the local municipalities.

2. DNR is doing all it can to control metro goose population. Land use and other factors adding to the problem are beyond DNR control. The food shelf program is a sensible option for controlling metro geese. DNR can't relocate geese to public rural land because geese move and will end up causing problems for nearby farmers and towns.

3. There is a big problem. DNR's approach is logical and sensible. Poor people will benefit from the project.

4. DNR has strong public support for this pilot project.

5. The food shelf project proposal is the result of a process that has identified problems and explored all other options.

6. DNR wants to use hunting as a control method, but can't beyond what it is now doing. DNR is taking a logical approach to managing metro geese.

ACTION (what do we want people to do or not do?)

1. Not criticize the DNR for not meeting desires of some goose hunters

2. Support with phone calls and letters to DNR, legislators, and newspapers the DNR's efforts to keep goose numbers under control.
3. Not sue us. Not call or write DNR, newspapers, legislators complaining about the goose processing project.
4. Not protest too aggressively against this project.
5. To back this proposal and speak of its need with a consistent message.
6. Support DNR in editorials.

MAIN MESSAGE

The DNR, which is for urban geese and wants public to value these wildlife, is adding an additional tool to its rational, humane, and innovative approaches to the metro goose problem, which still leave plenty of geese around for those who like the birds, but improves life for those bothered by geese.

MAIN ARGUMENT

The metro area has too many geese and municipalities are asking us to help them reduce numbers. We can either leave the situation as it is or take some away. We've run out of places to put them, so we can either kill some and dispose of them or kill some and give the meat to food shelves.

EVALUATION (How do we know if we succeed?)

1. Pilot project allowed to proceed; 2. DNR is able to continue using food shelf program as an option for goose control in the metro area.

ACTIVITIES and TIMELINE (underlined items are communications activities, ✓ indicates completed activity)

Week of Jan. 20

- Wildlife okays the proposed pilot project ✓
- DNR asks other states and provinces if they want geese. ✓
- DNR begins initial contacts with feds and flyway councils (TL) ✓

Week of Feb. 6

- DNR meets with GU to tell them of the agency's goose management plans (GU board supports food shelf proposal) (TL, TB) ✓
- Implementation committee meets and assigns communications responsibilities ✓

Week of Feb. 13

- Tim to call Sen. Merriam to tell them of the problem and explain the logic of the proposed project. (TB) ✓
- Wildlife to send feasibility study proposal with cover letter to CMT and Governor's office. A special briefing will be scheduled if necessary. (TL) ✓
- Wildlife to request a federal permit for killing the geese. ✓
- DNR to call MWA, DU, and FWLA to inform them of our plans and follow up with meetings if necessary. (TB) ✓

Week of Feb. 27

- DNR, Cooper, and AGO to meet to discuss results of Cooper's lit. review and proposal. ✓
- March 3: DNR to send Dr. Cooper a letter outlining plans and advising U of M to relate information to municipalities on March 4. (TL, JC) ✓

Week of March 6

- March 6 (Mon.): DNR to send letter to all metro legislators informing them of plan and date of press release. (TL) ✓
- March 7 (Tues.):
 Fax PETA in New Jersey and Twin Cities release ✓
 Fax release (call Outdoor News, SPPP, and Strib, alerting them to release) to metro media and outstate dailies ✓
- March 8,9,10 (Wed., Thurs., Friday): Spokesperson available all day to answer questions from media (TD) and direct calls as necessary ✓
- March 8 (Wed.): News packet is mailed out, arrives to media Friday and Saturday. ✓
- June 15 (Friday): U of M to issue media advisory of media day at Normandale Lake ✓
- October : Food banks to issue press release an success of program for people in need ✓

ADDITIONAL COMMUNICATIONS ACTIVITIES

Compile list of names and numbers to pass on to inquiring media: (TD) ✓

- Jim Cooper (esp. for the "do nothing" option)
- Citizens (via Cooper)
- Airports
- Parks
- Municipalities

Prepare soundbites summarizing issue (TD, TL) ✓

Prepare responses to past PETA responses to our claims (TD, JC) ✓

Ask support staff to keep track of calls for and against (TL) ✓

Meet with key staff day after announcement to devise action plan in case of protests,
negative media coverage, etc. (all key staff) ✓

Evaluate activities afterwards and discuss results with key staff. Note recommendations for
future media plans

KEY DNR STAFF

Tim Bremicker (TB), Tom Isley (TI), Blair Joselyn (BJ), Ed Boggess (EB), Roger Johnson (RJ), Tim Wallace (TW), Jon Parker (JP), Tom Keefe (TK), Tom Landwehr (TL), Jeff Lawrence (JL), Tom Dickson (TD)

OTHER MAJOR PLAYERS

Jim Cooper (U of M), Steve Wilds (USFWS)



STATE OF
MINNESOTA
DEPARTMENT OF NATURAL RESOURCES

PHONE NO. (612) 296-5290

FILE NO.

October 1995

Dear Consumer:

The Department of Natural Resources is doing a survey to see what you think of our goose meat product. We would appreciate your taking the time to provide some comments and ideas on what you thought of the goose meat product you received. Since this is a study your comments and suggestions are very valuable.

Please complete the following questionnaire and mail it to me in the attached envelope.

Note: these were wild Canada geese and although the chance is remote they may be carrying steel shot in their meat from hunting. The steel shot can hurt your teeth if you bite down on one. Just be careful when chewing.

Thank you and if you have any questions please call.

Sincerely:

Tom Keefe
Wildlife Specialist
18310 Zodiac Street.
Forest Lake, Minnesota 55025

PLEASE CIRCLE YOUR ANSWER OR WRITE IN YOUR COMMENTS

1. Have you ever had goose meat in the last 10 years...

A. No

B. yes

2. Did you eat this goose meat product...

Yes (go on to question #3)

No (please comment on why you did not use the product
and then stop and mail in the questionnaire)

PLEASE TURN OVER AND COMPLETE THE BACK SIDE

AN EQUAL OPPORTUNITY EMPLOYER

3. Please rank how well you liked this goose meat from 1 to 10 (with 10 being a high rating)...

1 2 3 4 5 6 7 8 9 10

Hated it----- OK ----- Loved it

4. If you hated it - WHY? or if you loved it - WHY?

5. How did you cook the goose ...

6. Would you use this goose meat again if offered.

Yes NO (If no, why not ?) -----

7. Please provide any additional comments or suggestions you may have...

Please return this questionnaire in the attached envelope or to the address listed at the bottom of the letter. Thank You.